THE IRON AGE

New York, April 8, 1926

ESTABLISHED 1855 VOL. 117, No. 14

Conveyors Nearly Triple Output

Power-Driven Conveying Systems Are Feature of Improvements in Continuous Foundry—Make 2000 Chevrolet Cylinder Blocks a Day

BY F. L. PRENTISS*

FOUNDRY operations have been developed to a very high point of efficiency, output has been greatly increased and production costs sharply reduced in the continuous gray iron foundry of the Saginaw Products Co., Saginaw, Mich., a division of the General Motors Corporation. As a result of the adoption of various methods of increasing plant efficiency, the cost of making castings is now as low as in any foundry in the country, it is said.

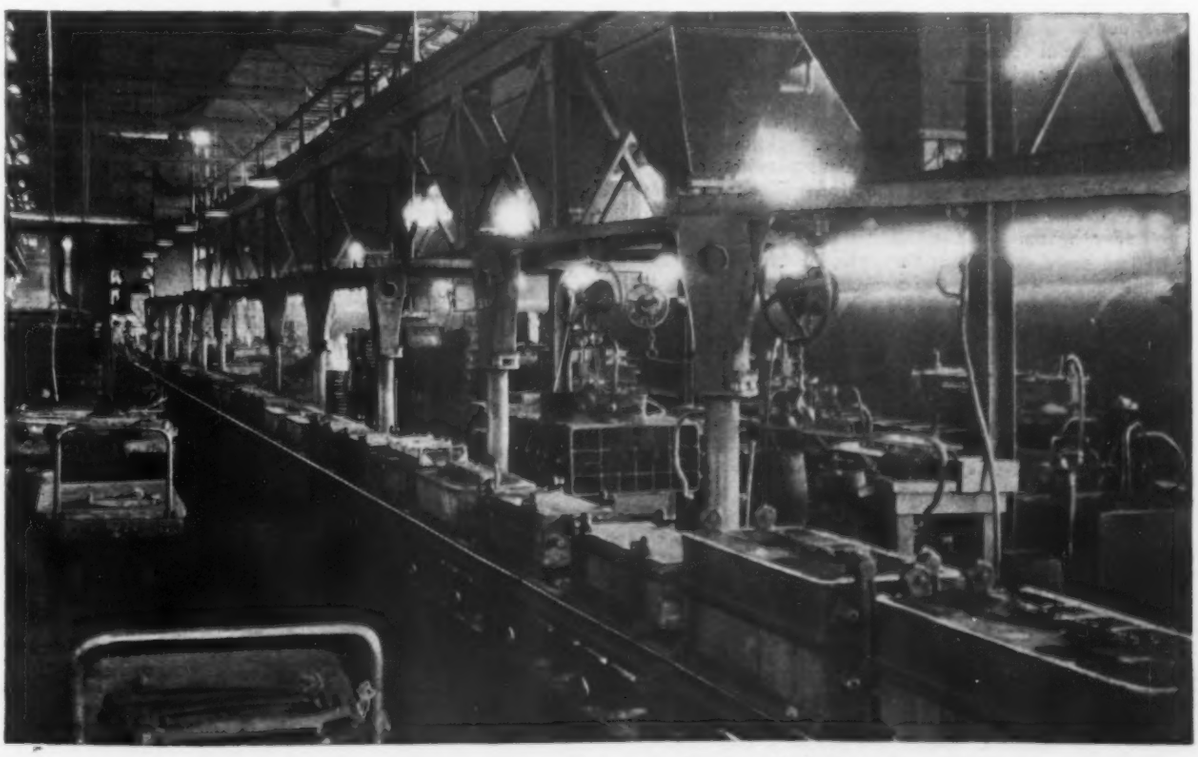
The foundry is used for the manufacture of motor castings for various types of cars made by the General Motors unit, the two principal castings and the ones that form the bulk of the output being cylinder blocks and cylinder heads. The outstanding feature of the plant from a large production standpoint is a molding unit with power-driven conveyors in which 2000 Chevrolet cylinder blocks are made in a 9-hr. day.

*Resident editor, THE IRON AGE, Cleveland.

Larger production and greater output for floor space have been obtained and costs reduced by the use of mold conveyors and other labor-saving handling equipment. While the plant is well provided with modern equipment, it has been the policy of the management not to overdo labor-saving devices. Work in all departments is divided so that so far as is practical one employee has only one thing to do. This subdivision of work evidently has been carried out to a greater extent than it could be done successfully in a smaller plant.

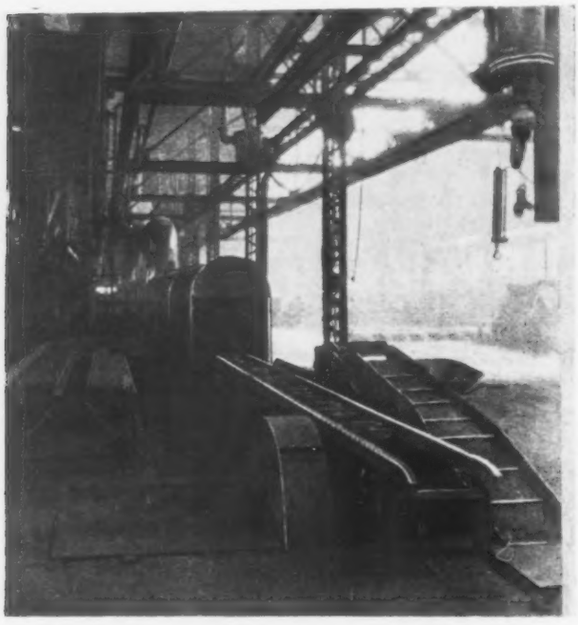
Four Mold Conveying Systems Speed Up Output

Incentive for labor efficiency is provided, since all workers except common laborers are on a piece-rate basis. The employees are guaranteed a base rate which is about the going rate for their class of work, and their earnings above that depend upon their skill and energy. With a foundry floor, 400 ft. long and 160



With This Molding Unit 2000 or More Chevrolet Cylinder Blocks Are Made in 9 Hr. Molds move along the conveyor at a speed of 12 ft. per min. Back of the conveyor are shown molding machines and jib cranes which handle the cope and drag flasks from the machines to the conveyor. That different molds can be made in the same unit and different flasks in different sizes can be handled on the conveyor is indicated by the photograph

ft. wide, the foundry, with the use of four power conveyors for handling molds and with other labor-saving equipment, has increased its melt to an average of 550 tons a day. A fifth conveyor is being erected, and when this is in operation, the plant will have a daily melting capacity of 600 tons and will produce 420 tons of good castings. The foundry was built in 1919, and when



The Shakeout End of the Mold Cooling Conveyor. After shaking out, an air hoist places the casting on the slat type conveyor at the right, on which it is conveyed through a tunnel under the foundry floor to the knock-out room. The empty flasks are placed on the gravity conveyor at the left, which connects with a power return conveyor that takes them back to the molding machines

started had a daily melting capacity of 200 tons and a casting capacity of 120 tons. The increase in production has not necessitated any enlargement of the foundry floor, which originally had been based on floor molding. The difference in capacity represents the saving of floor space through the use of conveyors.

The usual foundry operation is 9 hr. per day outside of cleaning and core rooms, which operate on a 24-hr. schedule. Two of the conveyors are used for handling cylinder blocks and the other two for cylinder heads. The fifth conveyor will be used for making blocks. The four conveyors are arranged in two parallel lines. The two near the cupolas are for cylinder blocks, and beyond these at the other end of the foundry are the two for cylinder heads.

The mold conveyors for cylinder blocks are 197 ft. 6 in. long. The pouring zone is along the last 40 ft. of the conveyor and close to the cupolas. At the end of the pouring zone the flasks are discharged onto a semi-circular gravity conveyor having a 10-ft. radius. On reaching the gravity section the flasks in front are pushed along by the flasks behind as they come from the conveyor, and move onto the cooling conveyor, which is parallel to the mold conveyor. The cooling conveyor is 229 ft. 6 in. long. It is covered for nearly its entire length with a sheet metal hood for carrying away the fumes and heat, which are drawn out, at two points one-third of the distance from the middle to the end of the conveyor, by means of exhaust fans and are discharged outside the building.

The drag of the Chevrolet cylinder block mold is made on Osborn roll-over machines, and the cope on Osborn stripping plate machines. For the Buick cylinder molds, Osborn and a few Nicholls stripping plate machines are used.

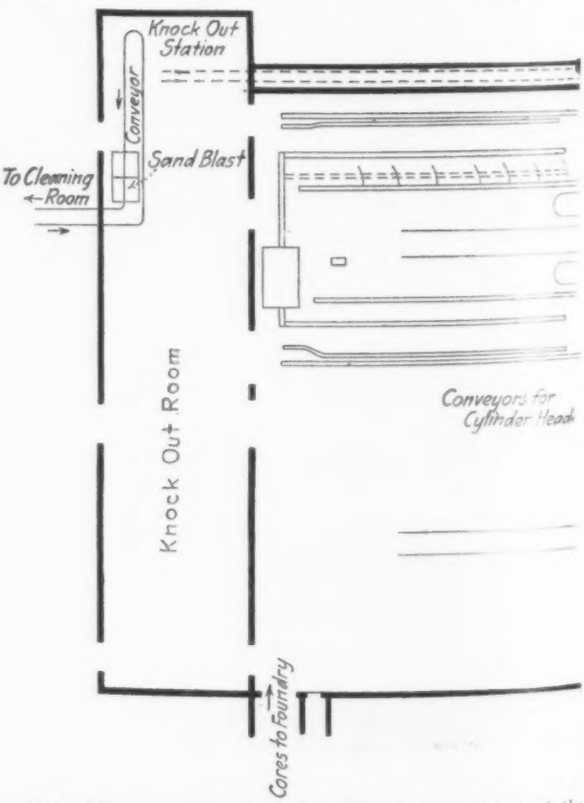
Machine Makes 300 Molds a Day

Seven drag and six cope machines are used for making the Chevrolet cylinder molds. These machines are located between the two conveyor lines, the drag machines being at the front end of the line and beyond them the cope machines. The machines were set up for a production of 250 molds per machine per 9-hr. day, but an output of 300 molds and over is being obtained on the cope machines. In fact, as high as 350 molds have been made on one machine in a day. The conveyor moves at a speed of 12 ft. per min., and the flasks are set 3 ft. apart on the conveyor, making the molding and pouring speed of the unit four cylinder blocks per min. A production of 2000 to 2100 Chevrolet cylinder blocks in 9 hr. is accomplished with 80 men, from the start of the molding up to and including the cleaning of the flasks, or from 25 to 26 blocks per man. The force on the molding end consists of 55 men for molding, core-setting and clamping, or all the operations up to pouring. Each molding machine has three men, two for making the mold and one for finishing. Jib cranes equipped with hand hoists of 500 lb. capacity are provided for handling the cope and drag molds from the machines to the conveyor. Lift trucks bring the cores from the core room on racks, which are set at the proper stations along the mold conveyor.

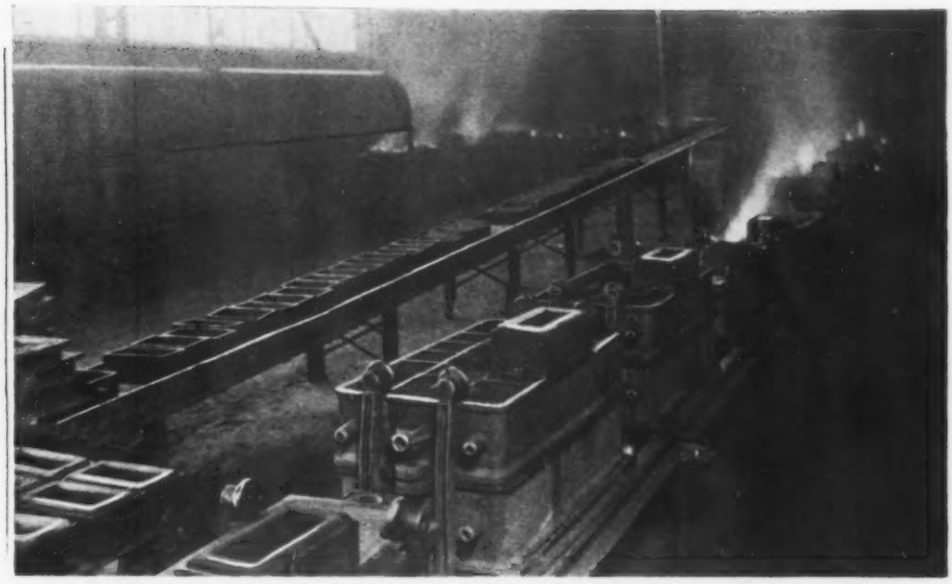
Keep Record of Output of Each Molding Machine Operator

There are six clampers, one for each cope machine, for clamping on the copes after the cores are set. Two men make runner heads and one sets these on the flasks. While this is being done, other workmen, one for each cope, are placing the backing board on the back of the mold. Each molding machine bears an individual tag, and each drag and cope flask is tagged so that a checker can keep a record of the production of each of the men working on each machine. The bottom boards for the cylinder blocks are provided with skids for carrying them along on the conveyor. The cope, bottom board and drag are clamped together with a cam-type clamp so that wedges are practically done away with. The flasks are accurately sized to make sure that the clamps will function properly. The drag flask for the cylinder head is barred in the same way as the cope, eliminating the need of a bottom board. The drag flask has a skid that slides on the rail of the conveyor and is pushed along by a lug on the conveyor chain.

Six men do the pouring on the Chevrolet cylinder block conveyor. After the flasks are filled, the clamps



Plan View of Foundry Showing the Location of the conveyor systems for cylinder block molds now in



This Shows the Use of Cam-type Clamps for Clamping the Cope, Drag and Bottom Boards Together, Practically Eliminating Wedges and Reducing Labor Costs

and backing boards are taken off. The runner head box is then removed and dropped on a gravity conveyor, on which it passes back to the point at which the runner box was made, and the mold moves around to the cooling conveyor. Toward the end of the cooling conveyor one man removes the runner head, throwing it into a dump cart in which it is taken to the cupola. Shaking out requires 11 men. The molds are shaken out on the last 15 ft. of the cooling conveyor. Men are stationed about 15 ft. back along the conveyor line to knock off the sprues.

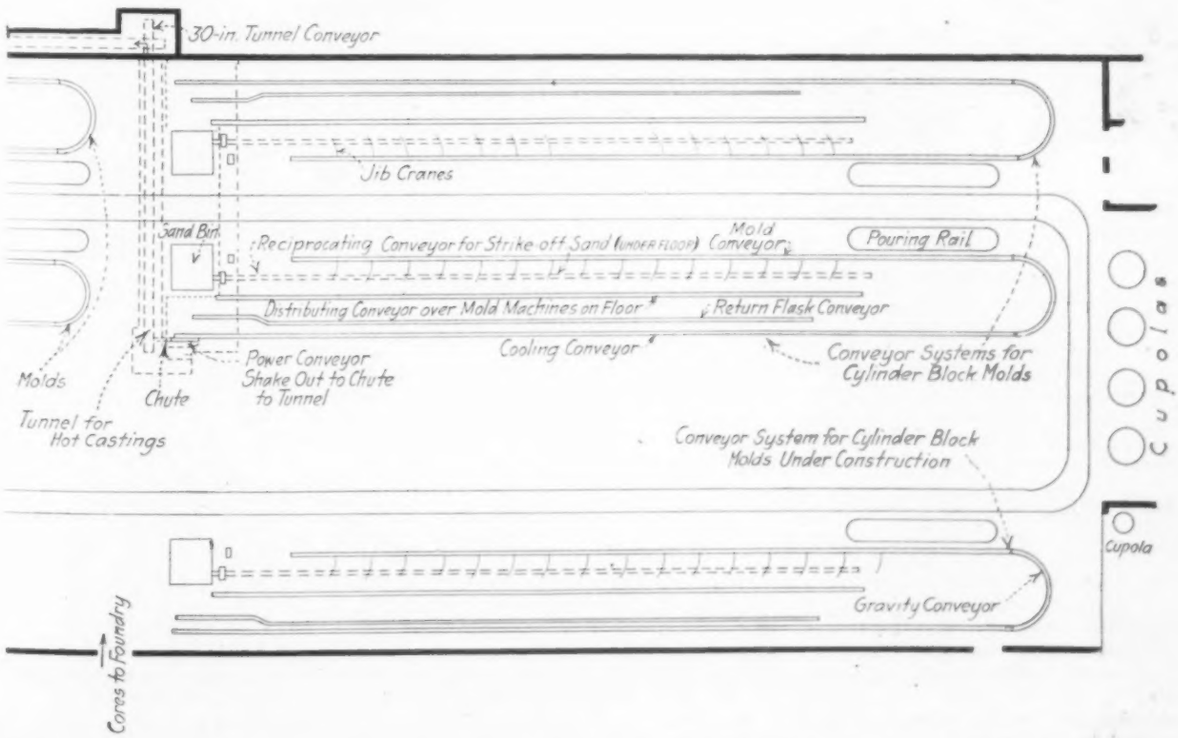
Molds Shaken Out at End of Cooling Conveyor

At the shakeout the copes are pried off and thrown on a structural steel horse, and are jarred by two men. Another man brushes the loose molding sand off the casting, and the next man hooks the casting on an air hoist that places it on the conveyor that takes it to the knockout room. The empty flasks are placed on a return conveyor at the side of the cooling conveyor. The first 80 ft. of this is power driven. From this section the flasks pass along to a gravity section of the conveyor, from which they are taken to the molding machines.

An underground slat type conveyor, which starts at the ground level at the end of the mold cooling conveyor and extends beneath the foundry floor, carries the Chevrolet cylinder blocks to the knockout room in another building, a distance of 220 ft. In this room an air hoist removes the castings from the conveyor and places them on a four-station table on which the cores are knocked out. The castings are then hung on a monorail and pass through a continuous sand blast room on the knockout floor. There are three sand blast operatives for this room, two working at a time, one man for each side of the casting. From the sand blast the castings move along on the conveyor to the cleaning room, a distance of 220 ft.

Will Cool Castings En Route to Cleaning Room

An interesting addition to the conveying equipment that is now being erected is an overhead monorail con-



Four Conveyor Systems Now in Service and the Fifth System, Which Is Under Construction. The two use are the converse of each other. The same is true of the two conveyors for cylinder head molds

veyor that will take the hot castings from the shakeout to the cleaning room. Instead of having as short a travel as possible, the conveyor will have a number of outdoor loops, making the total length 550 ft. With this conveyor it will take 45 min. for the castings to move from the shakeout to the cleaning room, and in that time they will have cooled sufficiently to go directly through the sand blast room. With the new conveying equipment the work will be kept moving from the time the mold is placed on the mold conveyor until the castings reach the cleaning room.

All cylinder blocks are both sand blasted and tumbled, going from the sand blast to the chipping and grinding departments and then to the tumbling mills. Cylinder heads on reaching the cleaning room go to the tumbling mills and are then chipped and ground and, if necessary, are sand blasted after grinding.

Iron is melted in four continuous type Whiting cupolas, with 90-in. shells lined down to 72 in. These are set in a row on 16-ft. centers. Each cupola has a capacity for melting 20 tons per hr. In addition there is a 54-in. cupola for special work and for use in an emergency. Taking off iron is started at 7 a. m. and continues until 5.30 p. m.

Metal from the cupola to the pouring stations is handled with six 1-ton Sprague hot metal carriers, electrically operated on monorails. There are two parallel carrier tracks in front of the cupolas, and extension spouts are used to carry the metal from the cupola to the outside track. At the pouring stations the carrier discharges its metal into a 1500-lb. ladle suspended from an electric hoist that operates on an oval monorail track. There are three hoists at each pouring station for pouring the molds as they move along the conveyor.

Cupolas Have Two Charging Floors

The iron yard is served by a 10-ton crane with a 60-ft. span, which handles the pig iron and scrap with a lifting magnet. Material, so far as possible, is unloaded directly from the cars to the charging platform, the remainder being piled in the yard. Charges of pig iron are made up on flat trucks on the main charging floor. Four kinds of iron are used for each mixture. Charging is done by hand. The charges of scrap are placed in buggies on the main charging floor, and these are carried in an elevator to a second charging floor 12 ft. above. The two floors make the work more convenient for the men who are charging the cupolas, as crowding around the cupola doors is avoided. A second crane in the iron yard, with 5 tons capacity, is used for handling coke and limestone. These materials are placed in handling boxes, which an elevator carries to the charging floor. The handling of limestone is done entirely at night.

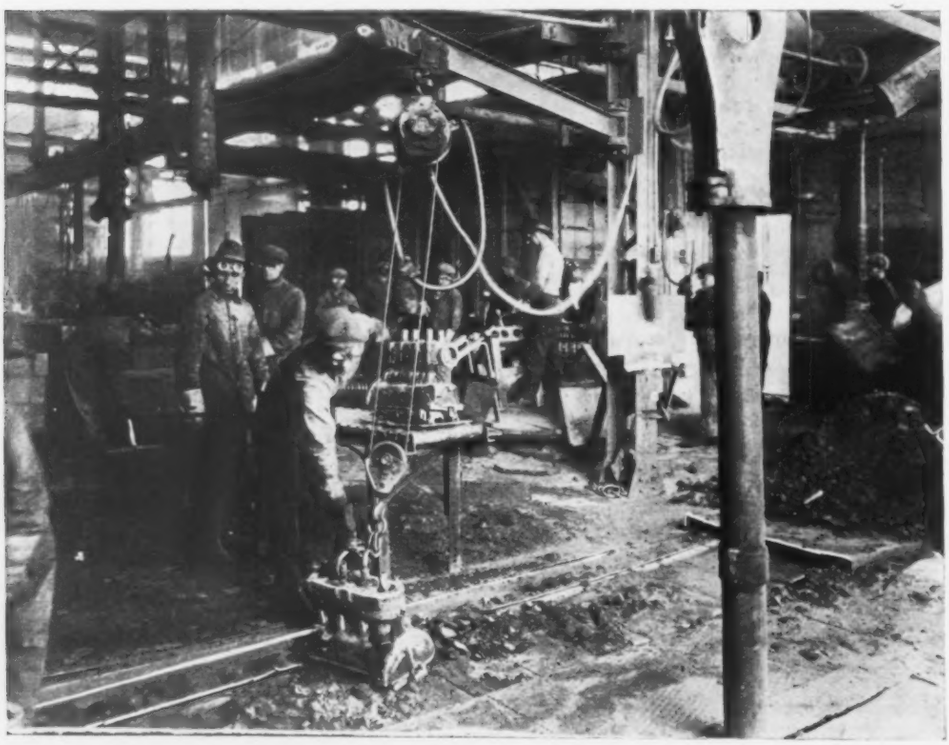
Sand Slinger Used for Core-Making

The core room and the core finishing department are equipped for rapid and accurate production. A recent installation is a sand slinger for making combination cylinder and crankcase cores. Sand for the machine is brought under the floor on an apron feeder and delivered to the machine in a bucket elevator. The core boxes are delivered from a gravity conveyor to a four-arm turntable in front of the sand slinger. While one core box is being placed on the turntable, another is being rammed and a third is being removed. Cylinder cores are made on two Wadsworth core machines hooked together as one unit and rigged up with a single sand conveyor for feeding the machine.

The bores of the cylinder head water jacket cores are ground with a six-spindle grinding machine designed for this work. After a wheel is used one-half a day it is broken into four sections and replaced, with the sections set to provide the proper diameter. This resetting is continued twice a day until the wheel is worn down so that it can no longer be used. This method of securing the greatest amount of efficiency out of the grinding wheel is made possible by having the metal flanges of the wheels nearly as large in diameter as the bore of the core. These bores were formerly reamed out with a file, but the new method is much quicker and more accurate.

Surface grinders are used for grinding the surface of the water jacket cores and all other cores having flat surfaces. The core moves on a standard carriage, which is fitted with various sized grinding fixtures for different sized jackets. The carriage is pushed by hand along a table 6 ft. long. Carborundum wheels attached to suspended air drills are used for grinding out bores in valve stem cores. Bores in cylinder jacket cores are cleaned with brushes attached to air drills. The mechanical equipment used in core finishing is located in 4-ft. gangways between the core shelves so that a disarrangement of the standard spacing of the shelves is not required.

All core dryers are removed with special fixtures to



The Knockout Room, Showing in the Foreground the Delivery End of the Underground Conveyor That Brings the Chevrolet Cylinders From the Shakeout. After the cores are knocked out, the castings are hung on a monorail and pass through a continuous sand blast room shown in the rear

Another View of the Chevrolet Cylinder Block Mold Conveyor. Leaving the pouring zone the flasks are discharged onto a semi-circular gravity conveyor and move around to the hood-covered, power-driven mold cooling conveyor shown at the left

avoid danger of breaking the cores. One man knocks out four dryers from 3500 exhaust port cores in a 9-hr. day.

Cores Checked for Accuracy

All cylinder barrel and crankcase cores are put in checking fixtures before going into the foundry, to secure accuracy and fit. Consequently no fitting is required in the foundry. One man sets as many as 4200 cores in a day for 2100 Chevrolet cylinder block molds. Practically all the work in the core room is handled on gravity conveyors. Both men and girls are employed in making cores, but practically all the assembly work is done by girls.

Cores are baked in 64 coke-fired, rack-type, 6 x 12-ft. ovens, built by Holcroft & Co. The ovens are arranged in two rows of 32 each.

Each of the larger molding units—those used for making cylinder blocks—has a separate sand handling system, while a single system supplies sand for the two smaller units. The shakeout sand passes through the grating into hoppers and is fed onto a belt having a magnetic pulley for removing metal from the sand. The belt carries the sand to an elevator, which raises it to a revolving screen and tempering belt. From this it is delivered to a conditioner, and then passes to a main hopper of 75 tons capacity. From the hopper the sand is fed to an elevator, which discharges it upon a flight conveyor that distributes it to hoppers above the molding machine. The strike-off sand from the molding machines passes through gratings to a reciprocating conveyor under the floor, which delivers it back in due course of time into the sand-handling system.

Iron Is Melted in Four Continuous Cupolas and Is Poured into Electrically Operated Hot Metal Carriers, One of Which Is Shown, That Run on Two Tracks in Front of the Cupolas. Extension spouts are used in filling the ladles on the track farthest from the cupolas

Core Costs Are Reduced and Greater Accuracy Is Obtained by Using Mechanical Equipment for Core Finishing. This is located in the 4-ft. gangways between the core shelves. In the foreground is a six-spindle grinding machine for grinding the bores of water jacket cores, and in the background is the machine for grinding the flat surfaces of the same cores

Core sand is fed into overhead hoppers connected to two bins, one containing bank sand and the other lake sand. From the hoppers the sand passes through sand mixing machines. There are three Standard and one Simpson sand mixing machines, the latter for mixing sand for water jacket cores, for which only lake sand is used. Natural sand is used for other cores. Lake sand for water jacket cores is first dried, and then moisture is added to assure uniformity in the sand.

Sand is stored under cover in a concrete storage building, 63 x 100 ft. Two unloading tracks extend through the center of the building, which is served by three 5-ton electric traveling cranes equipped with clam shell buckets. These unload cars to the bins and deliver sand from the bins to the chutes, from which it goes to the core room and foundry. New sand is delivered to the foundry floor with electric and gas-driven trucks.

Die Sinking Machine Makes Core Boxes

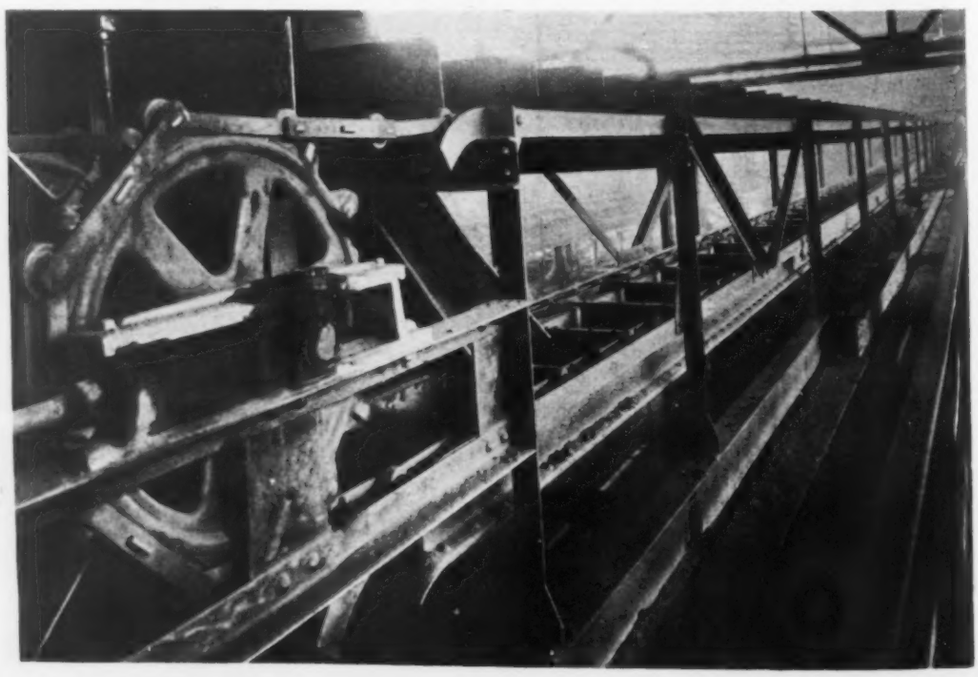
Improved methods have been adopted in the pattern shop to increase output and to produce patterns with closer limits than heretofore. Recently a Keller die sinking machine was installed for making core boxes and stripping plates for cylinder blocks. This will be used for making some patterns. First a wood model is made which is used for the pattern. This machine for core box work will take the place of milling machines. A special Blanchard grinder with a magnetic table is used for grinding core dryers. Some patterns are now being made within limits of 0.001 in. as compared with a former tolerance of 1/64 in.

Machine Shop Rejections Under 3 Per Cent

To reduce machine shop scrap to a minimum, a very thorough inspection of castings is maintained. A section, 1½ in. wide, is cut from a cylinder block bore each day, and this and the rail of the casting are given the Brinell test for hardness. The purpose of the test is to assure sufficient hardness in the bore and at the same time not have the rail of the casting too hard to machine. Locating points are guaranteed to the machine shop for every casting, and templates are provided for various checking operations. Because of the careful inspection, machine shop rejections are not over 2½ to 3 per cent. A well equipped testing laboratory is maintained. This, in addition to apparatus for testing the physical properties of the castings, includes the American Foundrymen Association's standard equipment for testing sand. Core oil is tested before unloading for color and strength. In addition, a new supply of oil is tested with the standard oil, both being used on the same plate, so that conditions are identical.

The mold and cooling conveyors in all the molding units and the monorail conveyors for handling castings, as well as all the sand handling equipment, were supplied by the C. O. Bartlett & Snow Co., Cleveland.

The Laclede Steel Co. has contracted with the Chapman-Stein Furnace Co. to install a continuous billet-heating furnace at the Alton, Ill., works. Billets 1⅝ x 1½ in. and 10 ft. long will be charged cold and heated, by top firing, to a rolling temperature of 2250 deg. The fire brick soaking hearth will be 4 ft. in length. The furnace will be fired by producer gas and equipped with a Chapman-Stein recuperator. The capacity rating is 6 to 10 tons per hour and the fuel consumption is guaranteed not to exceed 150 lb. of coal per ton.



Each of the Two Molding Units for Cylinder Blocks Has a Separate Sand Handling System. This shows the flight conveyor which distributes the sand to hoppers above the molding machines

Dreadnoughts of the Pacific Fleet in Battle Formation

The Navy and the Steel Industry

III.—Steel for Engine Building—Getting Away from Necessity to Import from Europe—Cooperation in Experiment Has Resulted in Development

BY G. K. SPENCER*

TO wage a sea battle successfully, it is necessary that the commander-in-chief bring his ships to the place selected. Once there, he must be able so to maneuver them that his guns can inflict the greatest amount of damage to the enemy, with the least possible damage to himself. It thus requires that each ship be absolutely reliable in respect to her ability to carry out her part of the program. Any other condition might cause such a disarrangement of plans as materially to change the outcome of the battle, with possibly disastrous results to the country's future.

It can thus be seen how extremely important it is for the machinery, which enables the ship to maintain her proper place in the battle or scouting line, to be as perfect as it is humanly possible to make it. We may well remember the old story of the battle that was lost for want of a horseshoe nail.

Various bureaus of the Navy contribute their part to this handling of the ships. The Bureau of Ordnance in general takes care of the operation of the guns; the Bureau of Construction and Repair of the ships' control, steering, etc.; the Bureau of Engineering supplies the power that propels the ship, as well as the various auxiliaries that furnish power for handling the guns and steering the ship.

The Bureau of Engineering is technically responsible for practically all of the power supply furnished on board ship. In the popular view, this applies more specifically to the power for moving the ship, and this is its most important single item. But along with this are numerous auxiliaries which contribute, each in its own way, to the efficiency of the whole ship.

As in any organization, business or sport, cooperation is the essential method without which no collection of men or machinery can perform efficiently. On board ship, confronted with the constricting requirements of space, such cooperation is particularly necessary. The

*San Diego, Cal.

CONCLUDING the story of the intimate relationship between naval development in the United States and that of the country's steel industry, this installment deals largely with materials for the construction of engines and boilers. When the first steel vessels were built for the Navy in 1883 *they were fitted with full sets of masts, spars, sails and the running rigging going with a sailing ship. The Chicago was a full rigged ship of three masts; the Atlanta and Boston were rigged as brigs, and the Dolphin as a two-masted schooner. It is a far cry from the day when the marine propelling engine was regarded as auxiliary to the propulsive power of the wind to the present day condition, with electric motors driving the ship, deriving their power from high-velocity steam turbines and high-pressure steam.*

Fifty years ago it took 18 *to* 20 *lb. of coal to transport* 100 *tons of cargo one mile by sea. Today,* 1½ *to* 2 *lb. of oil perform the same service.*

development in naval engineering which this country has seen in the past three decades has been possible only through the utmost cooperation between those who design and supervise the construction of the machinery of the ships and the commercial firms which build and install the machinery.

Steam Not a Welcome Innovation

The progress of steam machinery on naval vessels had a hard birth and a bitter fight for existence in its early youth. Captains intimately familiar with their sailing ships loved to maneuver them, and were loath to transfer that personal contact to the engine rooms. As with any new development, the early motive power was not very reliable and breakdowns were frequent. All this increased the distaste for the new type of propulsion. Moreover, in the period of retrogression which followed the Civil War, money for development work at home was hard to obtain, and the initiative passed to foreign ship and engine builders.

With the passage of the act of Aug. 5, 1882, which provided for the first vessels of our "new" Navy, began that enormous growth in engineering which culminated in the projected plans of six battle cruisers. Built into the hulls of 33-knot ships was to be machinery of upward of 180,000 hp.—more than is found in any but the largest power plants on shore.

But the feature of this act of 1882 which was of the greatest importance, and had most far-reaching results, was its provision that the steel to be used should be of "domestic manufacture." It is hard to realize that, when this bill was passed, the shipbuilders of this country used either wrought iron or steel imported from England. Small as were the castings or forgings in those days, this country did not possess the necessary means for making them. And the designers of these early years recognized the necessity of incorporating nothing but the best of materials possible to use.

From this beginning the Navy Department, through all of its bureaus, has been in the forefront of industrial research and development. The cooperation with manufacturers, soon established, has been constantly maintained, the common aim being always toward the production of some more suitable material, whether for reasons of strength, life or economy. Now the problems of the Navy are in no wise different from those of any other great manufacturing concern, except that no tangible return upon the investment need be made. The Navy's value is potential, as in fire insurance, and until it fails the consequences can not be predicted.

Evolution of Naval Machinery

When Congress authorizes the construction of a ship, it specifies a certain tonnage, speed and, possibly, armament. Of the tonnage, after numerous conferences, a definite weight and space are allotted the Bureau of Engineering wherein to place the machinery which shall fulfill the requirements demanded of the ship. This is the province of the designers. The evolution of naval machinery has been remarkable.

Commencing with cumbersome machinery, the best that could be produced, but heavy and complicated, the world has seen the evolution of the compound engine, then the multiple-expansion engine, then the turbine, to which later was added mechanical reduction gearing, finally culminating in the adoption of turbo-generators and electric motors for the main motive power. Each step was taken with the idea of increasing efficiency and reliability. And it has been only through the utmost cooperation of the firms manufacturing this material that such results have been accomplished.

At first suitable steels were not available. The bureau adhered rigidly to its specifications, which had been drawn so as to obtain the maximum strength of each part. The manufacturers could not meet these specifications but, with the aid and cooperation of the bureau, better steel and cheaper steel has been produced than was dreamed of years ago.

In following out the bureau's practice the manufacturers have increased their own earnings, as people will always pay for a better product, knowing that the initial cost is not the only cost that enters into calculations. To forge and machine this material in the large sizes necessary, larger, stronger and more accurate machine tools were required. These were gradually provided, until now the manufacturers of this country have no hesitancy in competing anywhere in the world.

Inspection of Material Assumes Huge Proportions

To enable the bureau properly to safeguard itself, so that no unsatisfactory material should be introduced on board ships, a vast system of inspection service was inaugurated. The bureau has representatives at every large manufacturing center, and at every shipyard or large plant where either ships, engine, or steel material is manufactured. These officers and men are more than inspectors—as the bureau's direct representatives they watch all steps taken in the different processes, and are always ready with advice and assistance, to the end that the product may be made more satisfactory and that its cost may be cheapened without loss of quality. In this way they have been of inestimable value to the firms with which they have been associated.

The specifications to which they work are not impossible—they are rigid, but they seek to establish uniformity in the product and to improve the quality of the material, a result always desired by any reputable firm. These specifications, drawn from years of experience and tests, both on shipboard and on shore, seek to obtain the best that can be obtained. For that reason the Federal Specification Board, which now seeks to standardize the specifications under which all material for Government use must be purchased, has adopted extensively the specifications prepared by the Bureau of Engineering of the Navy Department.

But to keep thoroughly abreast of the times and take advantage of the latest development in all branches of engineering, research must be undertaken along those lines which have to do particularly with naval service, and tests made to establish the proper compliance with these specifications. Each navy yard has testing equipment and usually provides a chemist who will analyze those products susceptible of such analysis.

Inspection of rubber, for example, is exceedingly complex, as it is a compound which is capable of being manufactured in many ways, and which necessitates accurate analyses to insure compliance with the specifications. The bureau has constantly aided the manufacturers of these compounds to increase the uniformity of their products, and substantial improvements along these lines have been made. Inspectors of material and machinery make full use of these facilities, with the result that there is little controversy with the manufacturers, who appreciate that these tests are unbiased.

Testing Finished Materials

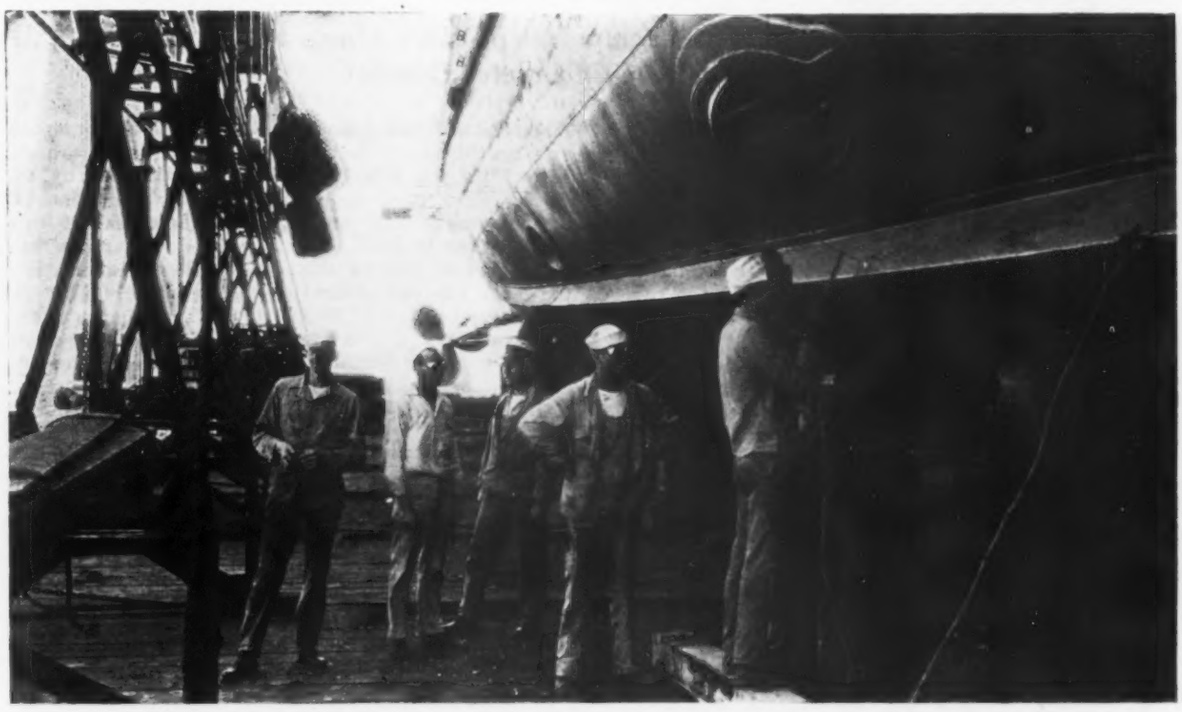
Finished products are tested both at the naval experiment station, Annapolis, Md., and at the testing laboratory in the New York Navy Yard. A system is in vogue at these places whereby manufacturers are permitted, on application to the bureau and with its approval, to submit samples of their products for exhaustive physical, chemical and life or service tests, upon payment of a small fee to cover the actual cost.

At these stations manufacturers, especially those who have not such facilities themselves, can be assured of a fair test at a minimum of expense. If the test is satisfactory, the manufacturer has the knowledge that his product is up to the standard, and that he can have no hesitancy in marketing it with the assurance that, if it will pass the naval requirements, it should pass any others. If it is not up to standard, it is probable that he will receive such information as will enable him to improve his product.

Many important developments in naval engineering have taken place at these stations, and their full value is hardly appreciated by the average manufacturer of engineering material. There is this stipulation, though, that the results of such tests must not be used for advertising purposes. The Navy must jealously guard the confidence which the manufacturers repose in it, and must preserve at all times the position of an impartial friend and judge.

To supplement these, the naval research laboratory has recently been established. Here it will be possible to take up promising inventions, methods or processes, and develop them into products which will ultimately increase the Navy's efficiency. The horizon of engineering is constantly broadening. An invention or discovery today may later be applied to a great many problems hitherto unsolved.

Emission of ions from heated wires is a case in point. Commencing with the Edison effect, successive inventors have developed the theory of the action and applied it so that today we see the results in Mazda lamps and X-ray tubes, and, which is probably more interesting, in the wonderful realm of radiotelephony. The Bureau of Engineering must constantly be ready to take advantage of such discoveries and see whether or not they are at all applicable to its problems



Using a Portable Welder in Repair Work on the Bilge Keel of a Destroyer, the Function of Which Is to Minimize Rolling. Above the workman's head is an outlet for condensing water. Another outlet appears farther aft. Explosion of a bomb near these openings would be likely to destroy the underwater integrity of the ship and thus threaten its safety

Keeping in Step with Industry

But it is important that naval activities do not run counter to the trend of commercial engineering. Manufacturing in this country has developed enormously and, in certain ways, it has developed by groups; for example, the automobile industry. So great was the demand there for interchangeable parts that the Society of Automotive Engineers, formed from those interested in that work, has established standards so that fittings, bolts, etc., made by different manufacturers, can be used on all types of cars.

Standardization of products is greatly to be desired, but there must first come the standardization of the units which compose them. In time of national emergency, when every possible use must be made of all industries, it is essential that the machinist producing similar articles in widely separated parts of the country use the same allowances, tolerances, etc. That the bureau's designs may be capable of country-wide manufacture, it is essential that they conform to the national standards of design. Hence, the bureau maintains representatives on all such committees of national importance, and it is hoped that this will eventually result in a complete uniformity of manufacture.

A machine which has found great use for commercial purposes is the Waterbury hydraulic speed gear, developed by an employee of the Bureau of Ordnance for use in connection with training and elevating guns. For several years speed gears were used entirely for this purpose and have been developed to a point where they may well be considered at the highest point of perfection in machine design and manufacture. After being successfully used in connection with ordnance material for several years, they finally became of use commercially, and at present are used for steering gears, punch presses, riveting machines, locomotives, textile printing presses and motion-picture machines. While yet in the development state, speed gears show great promise of future use and will undoubtedly be utilized for a great variety of purposes.

Metals and Alloys

As the proper use of metals is the backbone of the engineering of today, it is of interest to note the bureau's activities in the advancement of this science. As was mentioned before, when the first steam vessels were ordered to be constructed of steel of domestic manufacture it was found impossible to do this immediately, due to the lack of proper knowledge and equipment. The steels that were produced were full of impurities and flaws, and it took long and careful investigations to determine how to remedy this trouble. New methods of production were evolved, improved methods of pouring and heat treating have been developed, and the quality of the production has steadily improved.

The bureau has a membership in the American Society for Testing Materials, and is constantly contributing material of value along these lines. The subject of proper heat treatment of metals goes hand in hand with proper metallographical examination and recording of the tested specimens. The Bureau of Engineering early recognized the great value of proper heat treatment, and has established clauses in its specifications requiring metallographical examination of certain materials to determine whether this has been correctly done. It has established at the naval experiment station a complete set of apparatus for conducting such examinations, and the results obtained from this source have been of inestimable importance in determining the causes of failures and in suggesting remedies. It keeps constantly in touch with the activities of the American Society for Steel Treating, with the object of standardizing the classification in treatment of steels.

Progress in the art of metallography has resulted

in the discovery of many new alloys, notably in the steels, where nickel, vanadium and chromium have been introduced, with the idea of toughening or lightening the steels and making them less liable to failure from "fatigue." Whenever possible the Bureau of Engineering has availed itself of the new alloys, in an effort to reduce the weight and space per horsepower of the machinery installations on board ship. This permits more fuel to be carried, with a consequent increase of radius of action, a point greatly to be desired.

Extensive tests and experiments on non-ferrous alloys have been carried out at the New York Navy Yard and the results of a great number of tests have indicated lines which it has been found advisable to follow up. Manufacturers are constantly being called into consultation with regard to the improvement of their product, as a result of these tests. There is still a great field to be covered in this line, and the bureau is using every opportunity to find metals of superior quality which can be substituted for those now in use. Considerable progress has already been made in the production of corrosion-resisting aluminum alloys.

Algeria an Important Iron Ore Source

Production Increasing Yearly While Equipment of More Mines and Additional Railroads Promise Still Greater Output*

Of the French Colonies, Algeria commercially is undoubtedly the most important. Situated on the African coast of the Mediterranean Sea, it is in a favorable position as an iron ore producer for shipment to plants in Europe as well as to the East Coast of the United States and Canada.

Conditions for the development of iron mines and the exportation of ore from Algeria are most favorable, both because of shipping and railroad transportation facilities and the helpful attitude of the French Government toward mining and industrial enterprises, an important factor in the development of this industry. Spain, on the other hand, has increased the export duty on iron ore as well as increasing port charges, which has exercised rather adverse effects on the Spanish iron ore industry.

Northern Portion of Algeria, Showing, by Crosses, the Locations of Important Iron Mining Operations and Their Railroad Outlets and Connections.

The iron ore deposits of Algeria are for the greater part of metasomatic origin and are generally found in liassic limestone; the origin and occurrence of some of the best known mines of the country, such as the Timezrit, Zaccar, Beni Saf and Rar-el-Maden mines. At the Rar-el-Maden and Beni Saf mines the deposit appears in limestone near the contact with palaeozoic schists, while at the other deposits mentioned the ores are intercalated in the limestone, except at the Ouenza mine, where he limestone in which the ore occurs is of the cretaceous period.

Small deposits of magnetic ores have been found and operated, but are relatively of little importance. The larger iron ore deposits consist of red and brown hematites of good structure, low in silica, easily smelted and in some cases almost self-fluxing. A characteristic feature of these ores is a convenient percentage of manganese.

The principal mines are near the coast, with railroad facilities for handling of the ore from the mine to the shipping port. The accompanying map shows the location of the principal iron ore properties.

Ouenza Most Important Mine

The largest and most important iron mine on the north coast is the Ouenza, operated by the Société de l'Ouenza, a French company. Although the company was organized in 1913, actual mining did not begin until 1921, the delay being caused primarily by the World War. Once operations started, production increased yearly until an output of about 700,000 tons was reached in 1925. It is estimated that more than 1,000,000 tons will be shipped in 1926. In addition to the large tonnage of ore in sight, engineers have reported reserves of 45,000,000 tons. The Ouenza ore is transported by railroad to Bona for transshipment to foreign markets. This ore, known as Ouenza-Companil, is a red hematite of good structure and mechanical condition and is almost self-fluxing. The accompanying table shows a typical analysis of this ore and an indication of its mechanical condition.

Other Mines Being Developed

The Ouenza company is interested in another mine also, the Bou Kadra, in the same district and about 20 kilometers (12 miles) from the Ouenza mine. These two deposits are of the greatest potential importance in the Department of Constantine. Preparation of the Bou Kadra mine recently was started and it is expected to be in operation by 1929. It is being equipped for an annual production of 500,000 tons of the same quality ore as the Ouenza mine.

The Timezrit mines, also in the Department of Constantine near El-Maten, ship their ore by rail to the port of Bougie. The output of this mine is 100,000 to 150,000 tons per year of a lumpy, non-phosphoric hematite, which has been used in the production of low-phosphorus pig iron both in Europe and in the United States. A typical analysis and the mechanical condition of this ore are shown in the table.

The mines of the Yebel Zaccar near Milianah are in the Department of Algiers. Shipment is made to Algiers on the railroad which runs between Oran and Algiers. The ore is a non-phosphoric, lumpy, soft hematite, as shown in the table. The annual output of the mines ranges from 250,000 to 300,000 tons.

Near the Moroccan frontier there is a small deposit of manganiferous iron ore, known as Rar-el-Maden. While the production of this mine is small, only 50,000 to 60,000 tons annually, it is of excellent quality. The

*Contributed by a New York ore importer.

Table I

	Analysis						Mechanical Condition Percentage		
	Fe	Mn	SiO_2	P	S	Cu	Lumps	Rubble	Smalls
Ouenza-Companil	56.19	1.90	1.67	0.006	0.085	0.05	60	24	16
Timezrit	58.50	1.10	3.80	0.014	....	...	36	34	30
Zaccar	54.95	1.25	5.07	0.018	....	...	45	30	25
Rar-el-Maden	51.10	5.75	2.97	0.016	0.204	...	25	40	35

Rar-el-Maden is a manganiferous iron ore of 6 to 8 per cent contained manganese, low in phosphorus and silica and of good mechanical condition, as the table shows.

Another important deposit, not yet, however, being operated, is the Sidi Marouf mine. Present plans indicate the beginning of operations within the next few years. This property is near Constantine, but several miles from the Constantine to Djidjelli railroad, now under construction.

Table II—Exports of Iron Ore From Algeria

Year	Tons	Year	Tons
1914.....	1,070,977	1923.....	1,448,000
1915.....	786,278	1924.....	1,815,000
1916.....	883,644	1925.....	1,660,000
1917.....	1,017,954		
1918.....	747,015		
1919.....	770,224		
1920.....	1,096,527		

Exports of Ore Show Rapid Increase

The accompanying table of Algerian iron ore exports from 1914 to 1925 serves to indicate the rapid growth of the iron mining industry of the country. During the past 10 years export of iron ore has increased 50 per cent—an average yearly increase of 5 per cent. Improvements now under construction or to begin shortly at the mines are larger than anything heretofore contemplated and should result in considerably greater production.

Exports of iron ore from Algeria in 1925 amounted to 1,653,763 metric tons as compared with 1,785,719 tons in 1924. Because of the depression in Great Britain that country took only about 900,000 tons last year against 1,100,000 tons in 1924. Germany, however, in the first 11 months of last year imported 384,100 tons as against 142,100 tons in the calendar year 1924.

Of importance in the future development of Algeria as an iron ore producing country is the improvement of transportation facilities from the mines to ports. While much railroad has been constructed, the greatest advance is expected during the next few years. Port conditions are satisfactory at present and improvements are under way to permit handling the larger tonnages expected as the industry develops, with additional mines producing.

Accident to Woodward Blast Furnace

Following a Slip Occurring as Stack Was Being Blown Out, Furnace Shell Was Severed Above Mantle—Contents Remaining Scattered by Entering Blast

ALMOST unusual accident occurred at Woodward No. 2 blast furnace of the Woodward Iron Co., Woodward, Ala., on March 20, resulting in the loss of twenty-one men, who were instantly burned to death or succumbed shortly after the accident. The No. 2 furnace was completing a very satisfactory campaign, during which the furnace had produced a record tonnage, and very satisfactory operations, the company officials emphasize, characterized the work of the furnace.

The official schedule called for the blowing out of the furnace on April 1. The last four days of the campaign resulted in the production of an excessive proportion of high-sulphur foundry iron, and for this reason the furnace was ordered blown out Friday evening. The

Though the Shell Might Well Have Fallen Into Casting House, or the Free Side, Instead It Crushed and Buckled the Skipway, Which Is Lying Underneath the Shell

The Upper Part of Shell Was Sheared at the Second Row of Plates Above the Mantle. Gas and blast mains were undisturbed

work of blowing out proceeded in the regular orderely manner, and without notable incident, until 4:45 Saturday morning, when the furnace slipped, according to the statement of those close to but not immediately around the furnace.

Directly following the slip, the furnace shell was completely blown off, at a point two sheets above the mantle. While it would have been easier for the shell to have fallen forward into the casting house, or to the free side opposite the dust catcher, it chose the more difficult one of going toward the skipway, which was buckled and bent backward at a point somewhere below the center of the incline. The top of the furnace found a resting place upon the stock bins. That the furnace was projected upward is indicated by the undisturbed gas and blast mains, which paralleled the stock house under the skipway. The higher of these mains is located at an elevation of about 10 ft. above the mantle, notwithstanding which it shows no mark of impact.

With the upper part of the shell removed, the remaining stock in the furnace was blown out by the entering blast and quickly deposited around the furnace, principally within a radius of about 75 ft. of the furnace base.

The recording gas gage attached to the Feld gas washer which is connected with a gas main leading to No. 2 furnace showed that during the night several slips occurred, the last of which was the most violent, and, seemingly, developed a pressure sufficient to rend the shell as stated and as shown in the photograph.

Inaccurate reports regarding a hot shell are wholly and unqualifiedly untrue. The officials say there were no hot spots on the furnace shell and point out that had this been the case, the furnace would not have sheared as shown in the photograph. There would, of course, have been evidences of over-heating and buckling, neither of which was indicated. Moreover, under such conditions, there would have been warning of impending danger, in which event the blast could have been taken off and the workmen could have reached safety zones.

Aside from the destruction of the furnace shell and skipway, the property damage was surprisingly small. It is probable that the furnace will be idle four weeks longer than ordinarily required to effect repairs.

Another Gain in Foundry Equipment

Total sales of 11 manufacturers comprising the Foundry Equipment Manufacturers Association amounted to $472,814 in February, a gain of 38 per cent over the same month in 1925. Sales were also heavier than in the previous two months. The total for January, 1926, was $414,121 and for December, 1925, $416,610. Shipments in February totaled $422,004, a gain of 51 per cent over the total for February, 1925, but a decline of 5 per cent from the $445,377 reported for January, 1926. Orders on hand on March 1 totaled $536,978, a gain of 6 per cent since Feb. 1 and an increase of 20 per cent as compared with the same date one year ago.

Molders Ask for 33⅓ Per Cent Advance

Molders in the Youngstown district are demanding a wage increase of 33 1/3 per cent, seeking an advance from 93¾c. per hr. to $1.25, or an increase in the daily rate from $7.50 to $10, and a five-day week. The United Engineering & Foundry Co., Youngstown Foundry & Machine Co. and the Falcon Bronze Co., leading employers of molders, have thus far resisted the demands, claiming they cannot meet competition elsewhere by paying such wages.

Addresses Scheduled for National Metal Trades Meeting

Among the speakers at the annual convention of the National Metal Trades Association, to be held in New York, April 15 and 16, will be:

John W. O'Leary, president of the Chamber of Commerce of the United States, who will speak on "Management Contribution to American Industry."

Dr. Clarence H. Robertson, Shanghai, China, "Scientific Advances in China."

Representative Ogden L. Mills, New York, "The Real Tax Problem in the United States."

W. Irving Bullard, Boston, "Problems of International Finance."

Virgil Jordan, chief economist of the National Industrial Conference Board, New York, "The Hub of the Agricultural Situation."

Dr. W. J. Spillman, Department of Agriculture, Washington.

The Bureau of Engineering of the Navy Department has extended its previously authorized use of steel for construction of auxiliary antenna trunks on light cruisers to include the main antenna trunk in the U. S. S. Marblehead.

Atomic Hydrogen Used in Welding

Two New Methods for Producing Ductile Welds—Air Excluded by Bath of Gas—Formation of Oxides and Nitrides Claimed to Be Prevented*

TWO methods for producing ductile welds have been developed by research scientists of the General Electric Co., working in different laboratories. Both of the methods, similar in some respects, are regarded as marking a distinct step in the utilization of the heat of electric arcs in the joining of metal parts. The one was developed in Schenectady by Dr. Irving Langmuir, the other in the Thomson Research Laboratory at Lynn, Mass., by Peter Alexander.

In both processes, air is excluded from the metal by means of a bath of hydrogen or other gas. It is stated that the formation of oxides and nitrides in the weld metal is thus prevented, and that the fused metal is as strong and ductile as the original metal.

Theoretical Study Made Fifteen Years Ago

Fifteen years ago, while studying the loss of heat of the tungsten filaments of incandescent lamps in an atmosphere of hydrogen gas, Doctor Langmuir found that at a high temperature the hydrogen gas changed from the molecular to the atomic state. In the molecular state, two atoms of the gas are grouped together as a unit; in the atomic state each atom acts as a unit. The molecular form is the more stable, and when the atoms recombine to form the molecules intense heat is liberated.

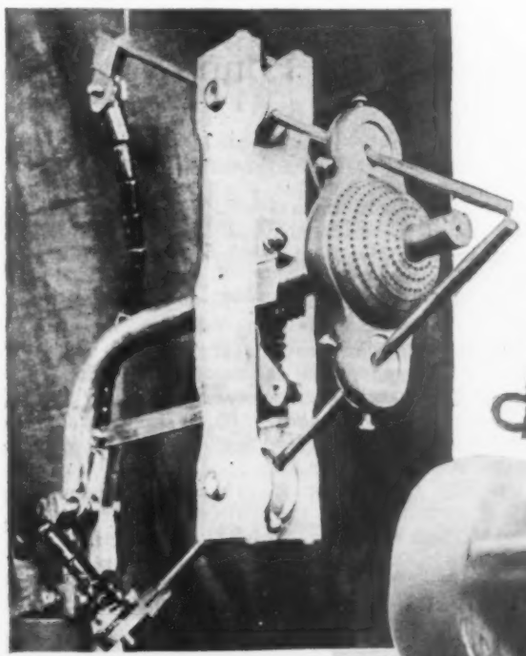
Doctor Langmuir's study of the filaments in hydrogen was a theoretical investigation. Continuing it, he found that more atomic hydrogen was formed by passing powerful electric arcs between tungsten electrodes at atmospheric pressure. By directing a jet of hydrogen from a small tube into the arc, the atomic hydrogen could be blown out of the arc, forming, it is said, an intensely hot flame of atomic hydrogen burning to the molecular form and liberating about half again as much heat as does the oxy-hydrogen flame. In this flame molybdenum, one of the most refractory of metals, melts with ease; quartz, however, melts less easily, in spite of its lower melting point. This indicates that the metal assists in the action as a catalyzer—which scientists define as a substance which accelerates a chemical change.

It is claimed that, by this method, iron can be welded or melted without contamination by carbon, oxygen or nitrogen, and because of the powerful reducing action of the atomic hydrogen, alloys containing chromium, aluminum, silicon or manganese can be welded without fluxes and without oxidation.

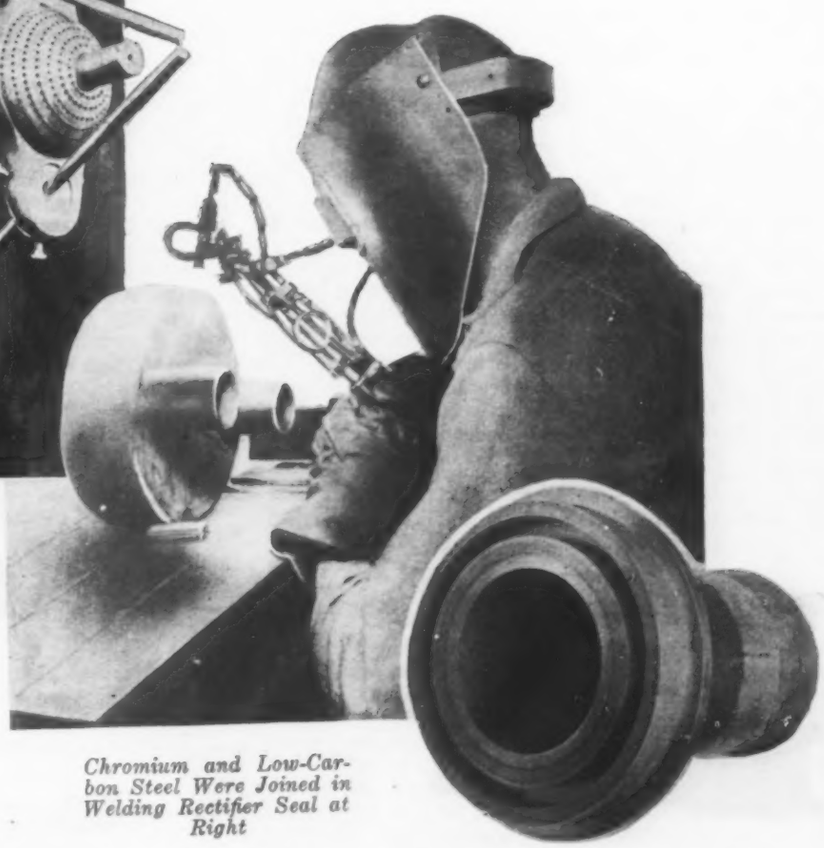
The technical development of this welding process has been the work of several men in the Schenectady laboratory, including R. A. Weinman and Robert Palmer, who have developed and tested many types of welding torches, and at the same time have conducted tests of numerous types of welds.

Two types of the atomic hydrogen welding torch are shown herewith. The two electrodes of the torch are tungsten rods, held at an acute angle with each other

*From an article in the March issue of the *General Electric Review*.



Two Types of Atomic Hydrogen Arc Welding Torches Have Been Developed. One type of torch is shown above and the other at the right in the hands of the operator



Chromium and Low-Carbon Steel Were Joined in Welding Rectifier Seal at Right

by lava insulators. When not in use, the electrodes are in contact with each other; they can be separated by pressure on a lever mounted on the handle. A set screw is provided for making slow adjustments of the electrodes. The hydrogen is supplied by a tube through the handle. Sufficient gas is used so that not only are the electrode tips surrounded by enough to form the blast of atomic hydrogen but by an additional quantity to surround the work with hydrogen.

Either alternating or direct current can be used, the former having been found more convenient, and permitting electrodes of smaller diameter to be used. The gas pressure required to operate the torch is very small; in the laboratory, with short lengths of tubing, a pressure of less than 1 lb. per sq. in. was sufficient with metals up to ½ in. in thickness. For ordinary welding, the rate of gas consumption varies between 20 and 30 cu. ft. per hr.

Since the maximum rate of heating is desired in welding, the torch is held close to the metal. The torch is inclined so that the blast of hydrogen passes over the pool of molten metal in a direction opposite to that in which the torch is moved along the line of the weld. Experiments have been conducted with several gas mixtures and various electrode materials, but the best results are said usually to have been obtained with tungsten electrodes and hydrogen alone.

Materials of many kinds have been successfully welded by this method. Low-carbon steels up to ½ in. in thickness have been welded without additional material after butting together tightly. Considerable work has also been done in connection with full automatic welding using a butt joint, and with no metal being added to the seam. A number of welds have been made on seamless tubing having a wall thickness of ¼ in. and an outside diameter of 4 in., and with boiler plate iron 1 in. thick. Welds on deoxidized copper such as silicon-copper have been made up to ⅜ in. thick metal, giving, it is claimed, unusually good sections.

In testing welds made by this process, the welded portions have been twisted and bent double without cracking or otherwise being injured. Such a procedure has not been possible with the ordinary arc weld, since such welds are usually brittle because of the presence of nitrides or a thin film of oxide or scale, removed in the new process by the presence of hydrogen.

Torch for Welding in Hydrogen With Metallic Electrode

Arc Welding in Gaseous Atmosphere Found to Give Ductile Welds

IN the process developed by Peter Alexander of the Thomson Research Laboratory of the General Electric Co., it was found that by surrounding the ordinary welding electrodes with an atmosphere of hydrogen or certain other gases, ductile welds could be produced. The gas, it is stated, acts as a flux and shield against the oxygen and nitrogen of the air; therefore the formation of oxides and nitrides of iron in the molten metal is prevented. The process originated from the study of metallurgy of the arc-deposited metal and the causes that limit its ductility.

The method is based on the action of molecular hydrogen. This gas at high temperatures, even in the molecular state, is a very active reducing agent. When it surrounds the crater of the arc it acts in the same way as it does in the hydrogen brazing process. Yet certain peculiarities of the process (for example, the extremely high voltage drop at cathode and anode of the arc burning in hydrogen) are due to the dissociation of the small amounts of molecular hydrogen in actual contact with the craters. Hence the apparent resistance of the arc, and consequently the amount of energy liberated, is about double that when the arc is burning in air.

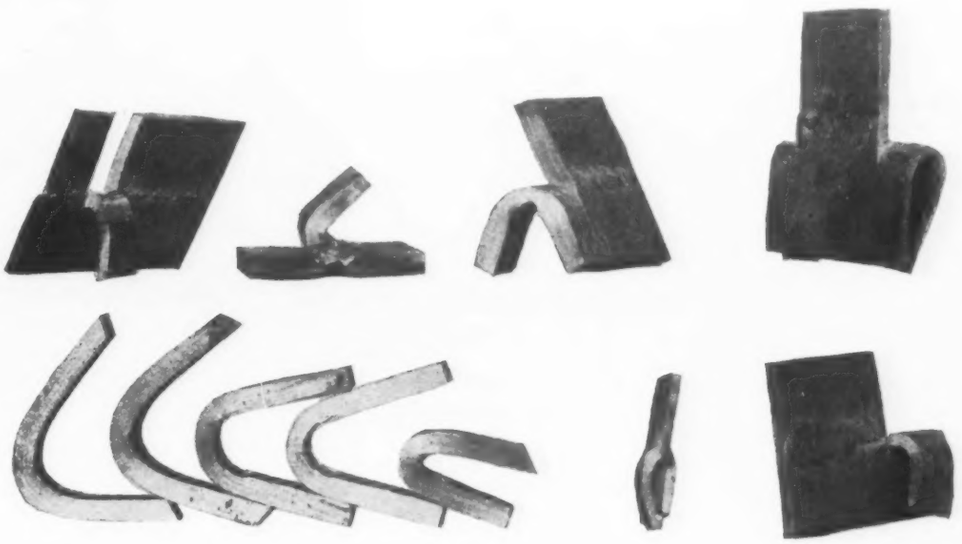
Consequently, it is claimed, the weld is not only ductile, but the operation is much faster. The speed results both from the greater energy of the arc in the hydrogen atmosphere and the fact that beveling of the edges of the material is unnecessary. Using 180 amperes and an arc voltage of 60, ¼-in. boiler plates, butted together without beveling, have been welded at a speed of 60 ft. per hr.

Ductility is a factor of prime importance in the welds of structures that are subjected to vibration, accidental bending stress, or overload. Also, ductility equalizes internal cooling stresses when present in the weld. If any part of the ductile weld is stressed beyond its elastic limit, it will not crack. It will yield until the

Samples and Tests of Welds Produced in Hydrogen Atmosphere. They were twisted or bent more than 180 deg. without cracking

stresses are more or less equalized all along the joint, which is proportioned so as to stand with safety the imposed load. It is further claimed that the metal deposited in the hydrogen atmosphere has been found to have a higher elastic limit, the elastic limit of pure iron electrodes before deposition averaging 29,000 lb. per sq. in., the elastic limit of the same electrode deposited by the arc in hydrogen averaging 42,000 lb. per sq. in.

In this welding process the arc is maintained inside of a hydrogen stream which burns along its outer surface of contact with air. The electrode is entirely surrounded by hydrogen, which eliminates the possibility of the metal in the crater coming in contact with air. Direct current is used. The equipment as developed in the laboratory includes the direct-current generator, gas hose, and spool of welding wire mounted as a unit on one base. The welding wire, the hydrogen gas and the electric current are sent through a flexible hose to the torch nozzle.



Variety of Test Pieces Welded With Metallic Electrode in Hydrogen

Other Gases Found to Produce Ductile Welds and Process Being Extended to Welding Alloy Steels

After the work with the hydrogen atmosphere was found to be successful, experiments with mixtures of hydrogen and carbon monoxide were conducted in accordance with Prof. Elihu Thomson's suggestion, and under his personal guidance. Water gas, containing about equal volumes of hydrogen and carbon monoxide, was next tried. It was found that welds produced in such an atmosphere were ductile and easier to produce. Work with various mixtures of carbon monoxide and hydrogen, produced either synthetically or by decomposition of various organic compounds, demonstrated that ductile welds can be produced in the atmosphere of any mixture of the two gases. Methanol or synthetic wood alcohol was found to serve well in this gas, so that transportation with portable outfits is facilitated.

A series of experiments with nitrogen-hydrogen mixtures showed that mixtures of these gases also give ductile welds. The use of liquid anhydrous ammonia which contains one volume of nitrogen and three of hydrogen, in this connection makes it possible to store large quantities of the gas in small volume as a liquid.

Still other gases and methods are being investigated in the Lynn laboratory, and academic studies are being made of the theoretical aspect of welding in different gases.

In its present state the process is being extended to the welding of alloy steels, non-ferrous materials and their alloys. The careful selection of the appropriate gaseous mixture determined by the nature of the materials to be welded is an essential factor for successful work.

In brief, this process is a combination of an electric arc which supplies the energy and an appropriate chemical reagent which, being in a gaseous state and at extremely high temperature, acts almost instantaneously.

CAST PIPE MAKERS TO MERGE

Three Southern Foundries Negotiating to Combine Through New York Bankers

Negotiations for a merger of several of the smaller producers of cast iron bell and spigot pipe are reported, Dillon, Read & Co., New York, bankers, having been approached to arrange the details. Included are the National Cast Iron Pipe Co., Birmingham, and the Lynchburg Foundry Co. and Glamorgan Pipe & Foundry Co., both of Lynchburg, Va. Efforts to include one Northern foundry in the merger are said to have been made.

Should the combination be confined to the three Southern foundries, the resulting corporation would rank among the large producers of cast iron pipe, but would still only control a small part of the total production. It is estimated that their combined production would be something less than 200,000 tons a year, which compares with more than 600,000 tons, the estimated capacity of the leading producer, the United States Cast Iron Pipe & Foundry Co. The total production of all makers in 1925 was estimated at more than 1,350,000 tons.

It is noteworthy that, should such a merger be consummated, either of the two outstanding patents on the manufacture of centrifugal pipe would probably be available to the new corporation. The National Cast Iron Pipe Co. has manufactured De Lavaud centrifugal pipe for some time, operating under license from the Centrifugal Cast Iron Pipe Corporation. The Lynchburg and Glamorgan companies are understood to be among the participants in patent rights on the "sand spun" process of centrifugal pipe manufacture, plants for the production of which are being built by the American Cast Iron Pipe Co., Birmingham, and R. D. Wood & Co., Philadelphia.

High Automobile Output

March furnished the second highest monthly output of automobiles ever recorded, according to a statement of the National Automobile Chamber of Commerce, New York. Total production is estimated at 447,185 units, being second only to the 452,486 of last October. The figure is far higher than that for any previous March. It records a gain of almost 20 per cent on February's total of 375,332. The average for the three preceding March totals was 378,166.

The Dwellings of Tomorrow

VI.—What Can Be Done to Increase the Use of Iron and Steel in Residential Construction

BY PRENTICE WINCHELL

FIVE preceding articles in this series have shown that:

1. *Iron and steel are practical building materials today*

2. *Successful use for widely varying purposes has proved their superior utility*

3. *Replacement of wood with metal results in safe, strong and durable homes*

4. *Iron and steel frames, lath, joist, tiles, etc., can be produced at a sufficiently low cost to compete with other materials*

5. *An eventual large increase in the use of iron and steel for homes is exceedingly probable for these reasons,* and

6. *Such an increase will increase the market for iron and steel materially and considerably increase the business of many of the metal trades.*

Now, if these things are so—and proof of their truth multiplies daily—an immediate question arises: What can be done to hasten the inevitable day when tons of iron and steel will take the place of piles of lumber in the material dealer's yard?

The famous Emersonian theory concerning the beaten path which desiring thousands will make to the door of the producer of a better article does not seem to be sufficient in these days of intensive competition and powerful advertising campaigns. And in any event, the better article must be produced, first of all. If people are to learn the advantages of iron and steel for home building, they must be shown those advantages in some more tangible manner than through the pages of a magazine or newspaper.

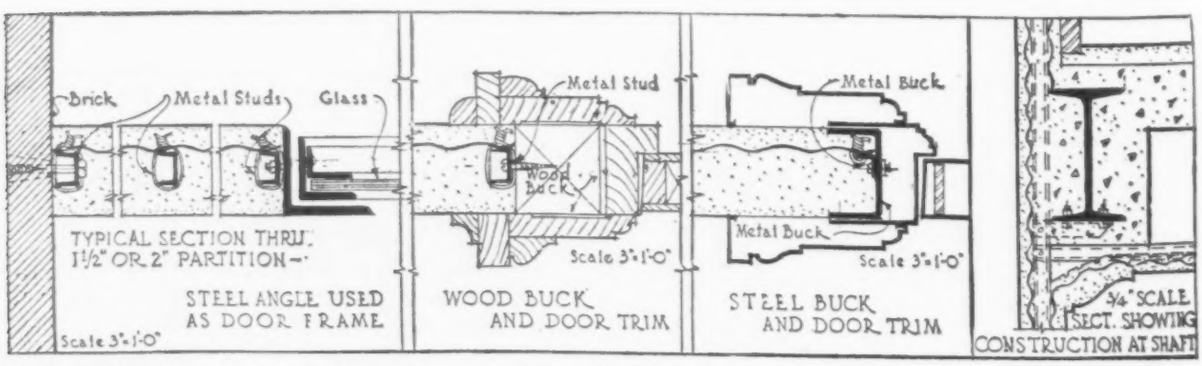
Model Houses First Step

CONSEQUENTLY the first step in the development of this potentially enormous market is the erection of model houses which will exemplify the claims made for them by architects, builders and manufacturers of metal parts. Such houses might be erected by individual companies cooperating with local builders, by real estate development corporations, by State or city housing associations or by private individuals. The erection of such houses will not necessarily involve any other expense than the temporary investment of funds which will terminate with the sale of the house: in fact, some of the model houses now being erected have been sold even before completion.

The fireproof, heat-insulated wall used in the Broderick steel frame house described in THE IRON AGE *March* 18. *Brick veneer exterior, dead air space, aerated gypsum cast on the job in unit frames—after erection, plaster on completed gypsum block. Brick veneer is waterproofed on inside before gypsum is cast. This type of wall is said to make for heating economy and to reduce amount of initial radiation necessary*

An impetus to this model house movement is being given by the housing shortage which exists, notably in several Eastern cities. So poorly constructed are some of the houses which have been erected of wood to meet the need for low rentals that local chambers of commerce have protested at the unsafe construction and the inadequate return to purchasers of such homes. The erection of hundreds of flimsy houses close together in congested districts is little more than an invitation to a disastrous conflagration, and housing commissions have so recognized it. This situation is of course favorable to the introduction of steel-frame or other fire-resisting houses.

Once such houses are actually up, there will be no lack of public interest. Newspapers and other publications are always ready to discuss improvements in homes and will give wide publicity to such developments. As witness, a leading New York newspaper has "adopted" the Broderick house (described in THE



Why metal lath and metal studding are superior to wood in residential construction: greater fire-safety, more rapid construction, greater permanence, fewer plaster cracks and better appearance of finished walls. Typical cross sections of 2-in. solid partitions

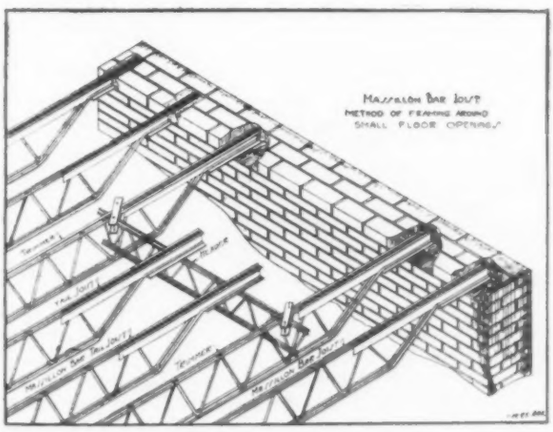
Sheet Steel Closets for Houses

ONE possible use for sheet steel in house construction has been suggested to THE IRON AGE *by D. M. Perrill, of the Sheet Steel Trade Extension Committee. "I can see no reason that sheet steel closets, say 7 ft. high and about 2 x 2 ft., should not be provided so they could be placed side by side to form partitions between such rooms as bedrooms or bedroom and dining rooms, the doors opening alternately into first one room, then the other. Where desired such sheet steel closets could be finished with metal lath so as to make it possible to give them plaster finish. Some of the work in the latest steel wardrobes shows that one-piece doors of sheet steel could be furnished to give a pleasing appearance, even in elaborately furnished homes. Such sheet steel closets could have a dual advantage—they would require far less space than is required by the usual building wall and they would greatly reduce the cost. False work above the closets and at the sides could take care of the variations in space. The economy is apparent when one considers that 2 x 2 x 6-ft. lockers are sold for a matter of* $10 *to* $12. *Properly presented, such closets should take the apartment house field by storm."*

IRON AGE March 18) and included it in its model house program.

The Architect's Approval Necessary

ANOTHER step in the development of iron and steel for homes is the arousing of interest among architects and builders. Granted the consuming demand—for already there is considerable tangible evidence of this—metals will not replace wood for housing to any great extent until the builders and architects put their seal of approval on the new materials. Missionary



Framing around small openings is simplified by the use of light-weight bar-joists; they are easily handled and make possible fireproof floor construction at a cost very little higher than wood joists

work on the part of interested companies, descriptive literature in the architectural and building publications, prize contests for the best designs employing steel-frame or other iron and steel items (such as that run so successfully by the Portland cement manufacturers recently); special introductory offers of material at a price permitting active competion with older methods of construction—these are some of the methods by which the architects and builders can be convinced of the superiority of metals for housing.

Then there is the question of the local building material dealer. Is he the eventual medium for distribution, or will iron and steel warehouses undertake to sell directly to builders? These are questions for the present distributers of metal lumber and lath, metal roofing and metal casements to study seriously with regard to future business. Several building material dealers interviewed by THE IRON AGE have stated that they would have no hesitancy in handling iron and steel frames, tiles, sheets, casements, etc., if demand makes itself evident. They also were of the opinion that it would be more profitable than the handling of lumber, inasmuch as inventories would be reduced and depreciation lessened.

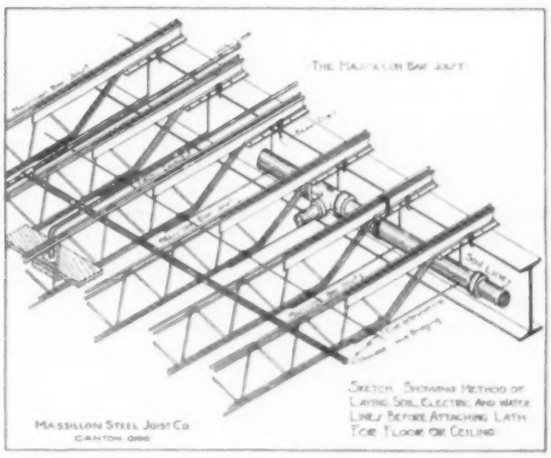
Other Suggestions

THEN the manufacturers of portable houses might well find uses for iron and steel which would improve the quality of their houses and make good construction more probable.

Large corporations in the metal trades may investigate the iron and steel house for their own residential properties maintained for the workers in their plants. There is reason to believe that such consideration is already under way.

The various groups interested in the introduction of a fire-safe, weather-proof, enduring home might find it profitable to associate for the purpose of concerted sales or advertising effort.

The iron and steel industry annually spends thousands of dollars on laboratory research and plant development for the purpose of reducing costs in production. The investment of much smaller sums in the initial encouragement of this new market for iron and steel might conceivably return equally large dividends



Laying pipes and wiring takes much more time and labor with ordinary wood floor construction than with steel bar-joists. This should be considered when relative costs are compared

in the long run. That the various social and economic factors previously mentioned are operating with ever-increasing pressure is no reason why the metal trades should wait for our population to discover iron and steel as building materials.

It is, on the contrary, the best reason in the world for exerting active and intelligent sales effort to secure this market today. Educational bread of this nature, properly cast upon the waters of public opinion, should be returned many times to those who undertake it now.

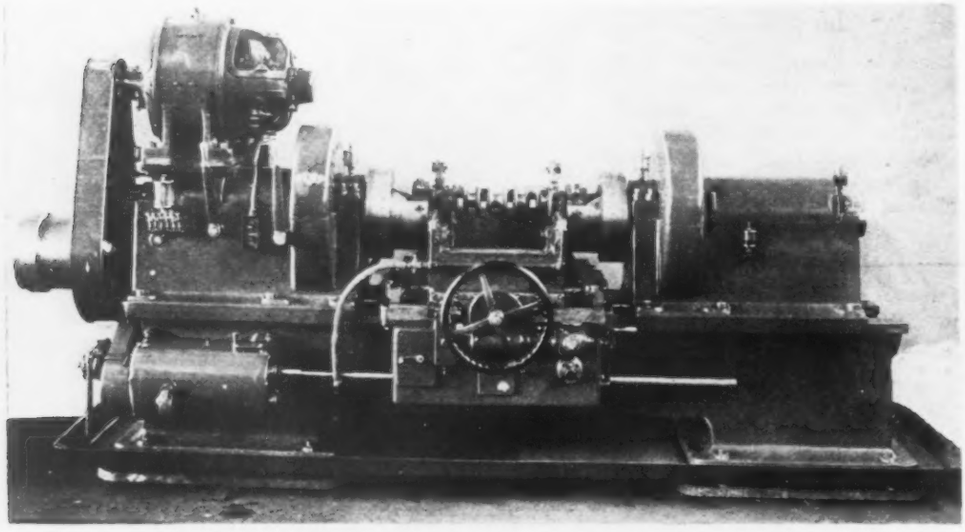
Improves Crankshaft Lathes

Machines of Both Duplex and Universal Types Made Heavier—Automatic Features Incorporated

Wickes Brothers, Saginaw, Mich., are placing on the market two 34-in. semi-automatic crankshaft lathes, one of duplex and the other of universal type. The machines are heavier than previous models and automatic features have been incorporated.

The initial drive of the new machines is by means of a 15-hp. motor through silent chain and sprocket, which is mounted on ball bearings. Chain drive to the feed box is also employed. If desired the latter can be arranged for belt drive from countershaft in the usual manner.

For cranks having a long cheeking operation, a direct-current, 550 to 1650-r.p.m., adjustable-speed motor, adjustable by field control, is recommended. The electrical control required is an automatic starter, in-



Semi-Automatic Duplex-Type Crankshaft Lathe. Rigid construction is a feature of both this and the universal type machine. The latter machine is of similar design to that shown, but is arranged for machining one pin at a time instead of a pair

closed field rheostat and a start-and-stop push button station. Where direct current is not available, a multi-speed motor with suitable control is recommended. A constant-speed 1200-r.p.m. motor may be used when machining cranks with a long cheek. For cranks requiring pin turning only, a constant-speed, 1200-r.p.m. motor with an automatic starting compensator and start-and-stop push-button station is employed.

The headstock is provided with a clutch and brake for driving and stopping the spindles, a lever on the headstock permitting convenient control. The gears in the headstock are of nickel steel and of wide face. Two speed changes are obtainable in the headstock by means of shifting gears, which are operated by a single lever. The position of the rear headstock on the bed can be changed to accommodate different lengths of crankshafts. Lubrication is from a central point through sight-feed to all bearings. The spindles and spindle drive follow those of the company's previous machines. The bed is of heavy construction and has heavy cross girts. Coolant is pumped directly to the cutting tool bits, both front and rear. The feed box is of the quick-change type, having eight changes of feed, and is equipped with roller bearings. The carriage is of heavy construction and is heavily ribbed.

The cross slides are divided so that the front and rear tools are fed in toward the center simultaneously. The rear cross slide is the full width of the carriage, approximately 3 ft., and has extensions on either side, making it practically 3 ft. square. The pressure on the rear cutting tool bits is upward and for this reason the rear cross slide has been made of large proportions. It is gibbed with taper gibs on both sides and in the center. The front cross slide is also wide but fits in between the wings of the rear slide, and is also gibbed in the center.

The cross feed screw is of nickel steel, of one piece, and is of large diameter. It has right- and left-hand threads so that the front and rear cross slides will be moved in toward the center simultaneously, and is driven by a large worm wheel at the front. Ball thrust bearings are provided to take the thrust in either direction.

The apron is of the double plate design, which provides support for both ends of all gear studs. Gears are of steel with teeth cut from the solid, and the studs are of steel, hardened and ground.

The electric rapid cross traverse feature of the previous pin turning lathes is employed also in the new machines. In this device movement of the controller handle on the apron brings the cutting tools rapidly into the cutting position; when the machining of the pins has been completed, the cross-traverse motor automatically returns the tools to the unloading position.

The pot chucks, which hold the crank in position, are of cast steel and are adjustable to accommodate crankshafts having from 4 in. to 6 in. stroke. The caps on the pot chucks are also of steel and are of the quick-opening type. The front and rear bearings of the crankshaft are held in the pot chucks by means of hardened steel bushings. Set screws hold the crank securely next to the pins being machined. A set screw on the end of each pot chuck holds the front side of the cheek, the opposite side of the cheek being held by the lug, which is secured to the other set screw passing through the pot chuck. Both of these set screws are close together and are accessible without the necessity of turning the pot chucks half over in order to secure the crank in place. The pot chucks are extended to clamp the crankshaft next to the pair of pins being machined, which is intended to prevent distortion in the crank.

Automatic Features Incorporated

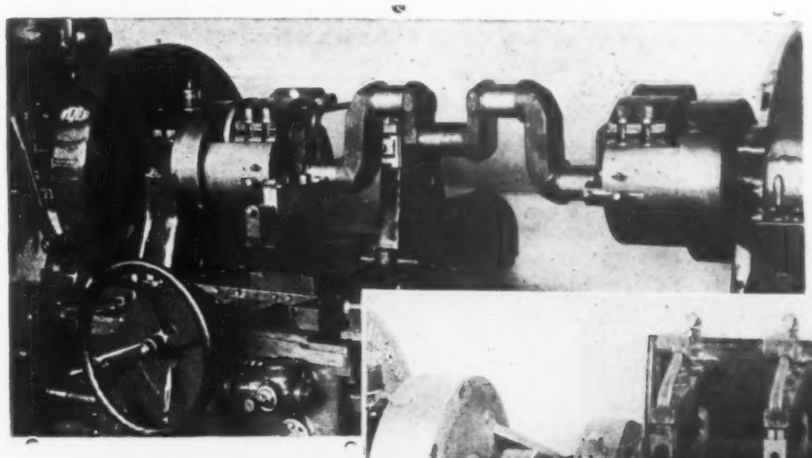
For machining cranks having a long cheek, lathes equipped with direct-current adjustable-speed motor, adjustable by field control, should be employed. The lathe is then provided with an automatic accelerating device. When the tool bits begin to machine the outside diameter of the cheeks, the lathe spindle revolves slowly. As the tool bits move down the cheek and the cutting diameter becomes smaller, the accelerating device automatically increases the spindle speed, thus maintaining a constant cutting speed.

Another feature is the automatic split feed. The machine is started with a coarse feed when the tools are cutting on the cheeks. As the tool bits move down toward the pin, the cheeks become heavier and the tool bits begin to cut the entire length of the pin as well as

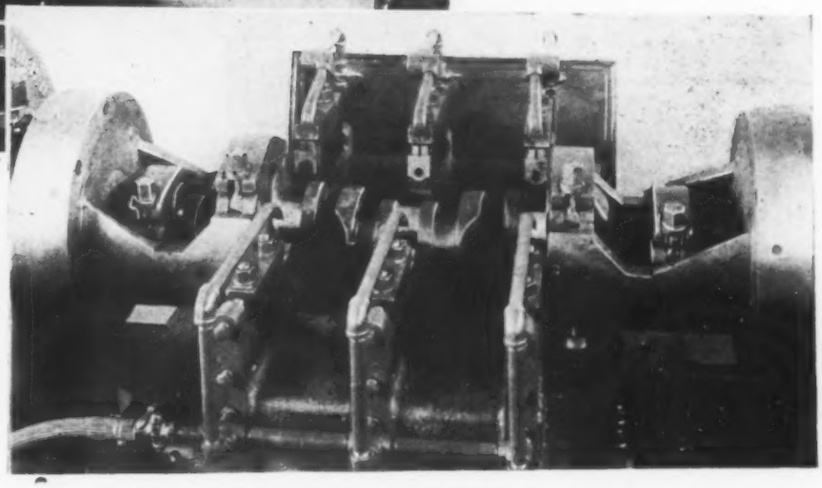
the fillet. The split feed then becomes operative, automatically reducing the feed.

As soon as the pins have been turned to the diameter required, an automatic stop trips the feed; the spindles continue to revolve for six revolutions in order that the tool bits may turn the pins to a true circle. The spindles are then stopped automatically, as well as the flow of the coolant, and the rapid cross traverse motor automatically returns the cross slides to the unloading position.

The method of securing the crank in a lathe for filleting the three center bearings of an eight-throw crank is shown in one of the close-up illustrations. The front and rear cross slides move toward the pin simultaneously, the front tool bits doing the rough cheeking and turning, while the rear tool bits do the finish cheeking and filleting.



Carriage of the Universal Type Crankshaft Lathe in Position for Machining the No. 4 Pin on a Heavy Crank



Close-up View of Potchucks, Which Are Extended to Clamp the Crankshaft Next to the Pair of Pins Being Machined, So That Distortion of the Crank Is Prevented

The swing over the bed of the duplex type lathe is 34 in. and over the cross slide 20⅞ in. The standard length of bed is 11 ft. The distance taken between face plates is 3 ft. 10 in. The floor space occupied by the machine is 4 ft. 8 in. by 13 ft. 1 in.; and the weight with standard length of bed is 14,500 lb. net.

In general design, the Wickes universal type of crankshaft lathe is identical with the duplex type, except that it is arranged for machining one pin at a time instead of one pair of pins at a time. The carriage is narrow so that it may be moved from one extreme position to the other without interference. The universal lathe has power longitudinal feed, automatic longitudinal stops and a positive longitudinal locating bar for locating the carriage in the correct position for filleting the pins. One of the close-up illustrations herewith shows the carriage of the universal lathe in position for machining the No. 4 pin on a heavy crank.

Eye protection for workers at the charging furnaces in the plant of the Timken Roller Bearing Co., Canton, Ohio, is provided by a pane of safety glass 18 x 24 in. and ¼ in. thick. Blue glass, similar to that used for melters' goggles, is used in a wooden frame and 4 in. in front of it is another frame covered with copper screen to break the heat and protect the glass.

The fifteenth annual safety congress will be held at Detroit from Oct. 25 to 30. W. H. Cameron is managing director of the National Safety Council, which will conduct the congress.

Copper-Tungsten Welding Electrode Eliminates Mushrooming of Tips

A copper-tungsten electrode for use in resistance and spot welding operations has been developed by the General Electric Co., Schenectady.

As its name indicates, this electrode is a mixture of two metals, one a good electrical conductor and the other very hard. It is claimed that the alloy has a Brinell hardness of 225 as compared with 82 for hard copper and 30 for soft copper. The compressive strength of the copper-tungsten is 208,000 lb. per sq. in. as against 58,000 lb. per sq. in. for hard copper, and the tensile strength is 56,350 lb. per sq. in., compared with 30,000 lb. for soft copper and 50,000 to 70,000 lb. for hard drawn copper.

As copper-tungsten does not anneal at red heat there is no soft surface metal to roll or mushroom over when used in resistance welding. It has been found unnecessary to form the entire electrode point or die of copper-tungsten, but rather to use inserts of this alloy by any one of a number of methods, such as forcing an oversized piece in a hole in the die, brazing a block in the wearing surface or placing pieces in a mold and casting the die around them. The remainder of the die is made of copper.

In view of the higher first cost of copper-tungsten, its chief value is expected to be in special applications. It is particularly adapted for use under severe conditions, such as in hot upsetting rivets electrically, and in facings for clamps for rod welding, split dies for welding steel spokes to both rim and hub of steel wheels and in other applications where a softer electrode cannot be used. In a recent test it is claimed that where the number of welds made with one dressing of a copper die averaged ten, the first test using copper-tungsten inserts gave more than 1000 welds, with the die in good condition at the end of the test.

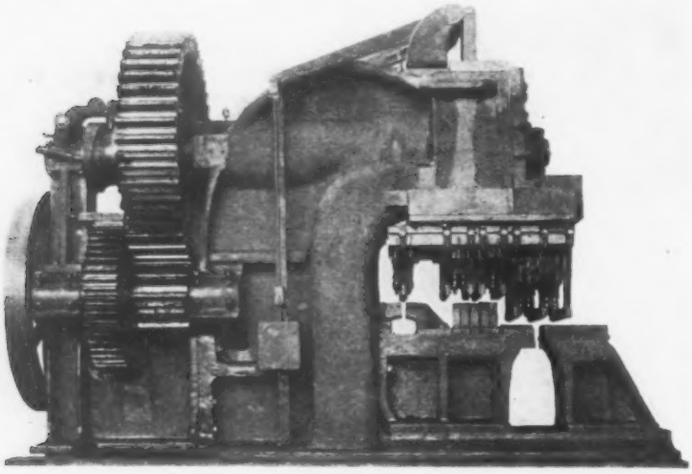
The material has been given the trade name Elkonite and will be manufactured and marketed by the Elkon Works, Inc., Weehawken, N. J., of P. R. Mallory & Co.

The Hyman-Michaels Co., Chicago, has bought all the rails and locomotives of the defunct Kansas City & Northwestern Railroad, whose terminals were at Kansas City, Kan. The equipment is being offered for sale. The dismantling of the railroad will be begun immediately.

Largest Open Gap Punching Machine

Its large size, the wide range of work that it will handle, and the fact that it will punch both flanges and webs without changing the punching tools, are outstanding features of a new beam punching machine that has been brought out by the Cleveland Punch & Shear Works Co., Cleveland. The machine is regarded by the maker as the largest open gap punch that has ever been built.

The capacity is for punching 8-in. to 30-in. Bethlehem girder beams in the flange and web without changing tools. Bethlehem H-beams ranging in size from 8 in. to 14 in. may be punched, and by placing an overhanger at the rear of the throat standard 6-in. to 9-in. H-beams and standard I-beams may be punched without changing other set-ups of tools. The machine may be used also for punching plates.



Flanges and Webs May Be Punched Without Changing the Tools. The machine is regarded as the largest open-gap punch that has been built

The punching tools are arranged in three standardized rows parallel to the main shaft. With the distance between the rows fixed and standardized, connecting angles can be punched with the same set-up as employed for the webs and flanges. The punching tools are hand gagged and adjustable from a minimum of 2¼ in. to a maximum of 48 in. The strippers are adjustable and may be set to clear the flange and web without change. The stripper arms are attached by a single bolt.

The frame is a solid casting of the I-beam type of construction. The drive is of the double-gear type, and an automatic clutch of the safety type which is employed to prevent a repeat stroke. The gears are of steel with cut teeth, and the jaw plate for the gears is a separate steel casting tongued and bolted on. All gears are bronze bushed. A safety feature is found in the elimination of an overhead counterweight. In its place are two counterweights, one on each side at the rear of the throat, these being guided on vertical rods.

The machine is driven by a direct-connected 40-hp. motor. The compactness of the driving end of the machine may be noted from the illustration and saving of floor space is a feature of this design. Over-all dimensions are: Height, 15 ft. 3 in., and length, 15 ft. 9½ in.

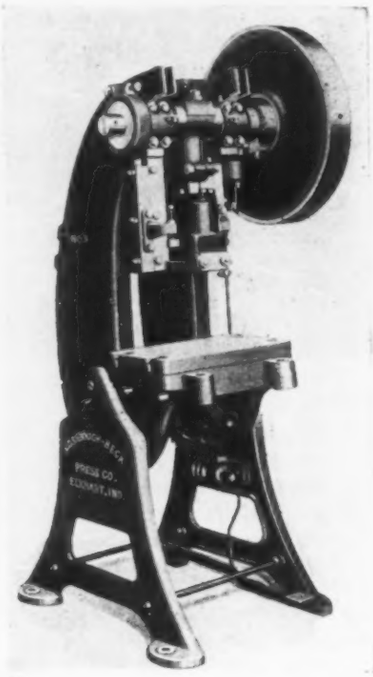
Three of these machines have been installed recently in fabricating shops, two in the plant of the Hay Foundry Co., Newark, N. J., and the third in the shop of the Whitehead & Kales Co., Detroit.

The General Fireproofing Co. announces receipt of an order from a Latin American republic for metal fixtures totaling $100,000. Equipment for barracks represents the bulk of the order.

High-Speed Inclinable Presses

Simplicity of design and generous dimensioning of parts are stressed in connection with a line of high-speed, heavy-duty inclinable presses being placed upon the market by the Loshbough-Beck Press Co., Elkhart, Ind. One of the features is the tripping mechanism, which, designed to minimize fatigue in operating the machine, tends to increase production.

The frame of the machine is of symmetrical design with the metal distributed to avoid shrinkage strains and to provide maximum strength at points of greatest stress. The main bearings are bored in alinement with the bed and carefully fitted to the shaft. Crank shafts are forgings of high-carbon steel. They are heavy and are provided with large bearings which are ground to exact size. The ram has long Vee-shaped guides which are accurately fitted in alinement with the bed. Special attention is said to have been given to the design of the ram so that with proper vertical adjustment the guides are always in full contact with the ways. The ram is also provided with a positive knockout and has a ball connection to assure rigidity. Either round or square punch shanks may be clamped in the square hole of the ram. The lower end of the ram is provided with extension lugs for clamping large dies. The ram is adjustable from both sides, making it convenient to keep it in alinement as it wears. The connecting rod, which is of high-carbon steel, is of the solid ball and screw design. The ball may be adjusted conveniently and locked in position. It is claimed that with proper lubrication this solid ball connection, with its changing wearing surface, will outlive the press.



The Tripping Mechanism Designed to Minimize Fatigue In Operating the Machine Is a Feature of the High-Speed Inclinable Power Press at Right. The bed may be inclined from 0 to 40 deg.

The clutch, of the square sliding type, is of tool steel and is heat treated. It is instantaneous in action and is provided with a device which locks the clutch pin while it is withdrawn, for convenience and safety in setting dies for making adjustments without unbelting the flywheel. The releasing latch is equipped with a safety stop to prevent the press from repeating.

The flywheel is of solid web type. It is provided with removable cast iron bushings so that it may replaced conveniently without reboring the wheel. Bronze bushings may be furnished at an extra cost. The flywheel rim is provided with holes for the convenience of the operator in turning the wheel by hand. The flywheel is also fitted with tool steel driving and recoil pins, which may be replaced conveniently when worn. The brake is of spring tension type, and is of one piece. Ample lubrication is provided for the machine. The machine is arranged so that it may be adjusted to any angle from the upright to 40 deg.

Adds 20-Inch Lathe to Model B Line

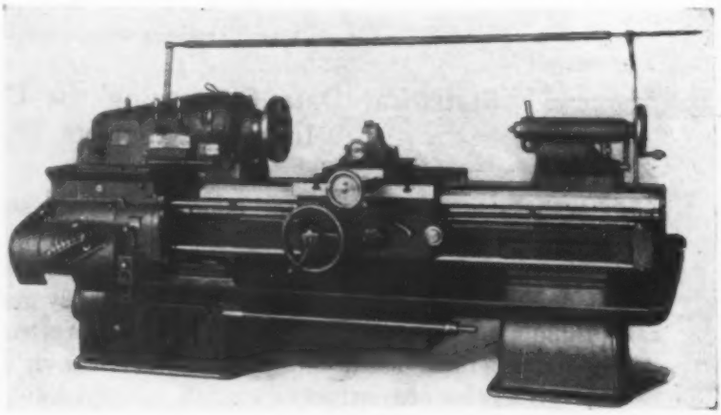
A 20-in. machine has been added to the line of Model B engine lathes of the Pratt & Whitney Co., Hartford, division of the Niles-Bement-Pond Co., New York. Although similar in general design to the 13- and 16-in. sizes described in THE IRON AGE of Aug. 30, 1923, the increased swing, added power and strength of the new lathe have necessitated departures for the standard Model B design.

The new lathe is designed primarily for motor drive, a 7½-hp. motor being recommended. As in the smaller machines, the motor is mounted in the cabinet leg beneath the headstock, an arrangement stressed as not only taking the motor out of the way but as permitting its being below the center of gravity so that vibration is practically eliminated. Regular equipment includes push-button control and low voltage protection. The drive may also be by means of a constant-speed single pulley belted to a lineshaft.

There are 16 spindle speeds, ranging from 8 to 383 r.p.m., instead of the usual eight speeds. A lathe of this size is frequently used in toolrooms to swing large jig work in which both small and large holes are to be bored. To do such work efficiently the greater speed range is needed. The same reasons apply to turning either small or large work. The extra swing requires the extra speeds. The 20-in. lathe will frequently be used to face large work where the cutting diameter will vary between 0 to 20 in. For this sort of work the larger range of speeds is necessary in order to maintain a fairly constant cutting speed (in. per min.) across the face of the work.

The geared head is of the same general design as the 16-in. machine. Speed changes are made by means of convenient speed change levers from the front of the headstock, but there is an extra lever which shifts a high and low range speed change on the main-drive shaft. The headstock gears are cut and ground to the Maag system. The back gears are located beneath the spindle and are operated by an eccentric lever beneath the spindle nose, which gives them a vertical motion for engaging and disengaging. This location is stressed as eliminating overhanging parts, resulting in a compact and symmetrical headstock which permits the maximum amount of light to reach the work centers.

The lower gears of the headstock train dip into a reservoir of oil and splash-lubricate the other gears. In addition, a geared pump delivers oil to a spreader which sprays it over the top of the entire gear train. The spindle is mounted in cylindrical bronze bearings, with taper adjustment for wear. End thrust is taken by hardened steel thrust washers. The hole through the spindle is 2 in. in diameter, and the taper hole in the spindle nose is ground to a No. 19 Jarno taper. The spindle nose has both flat and tapered seats in addition to the threaded portion so that accurate face plate setting may be made.

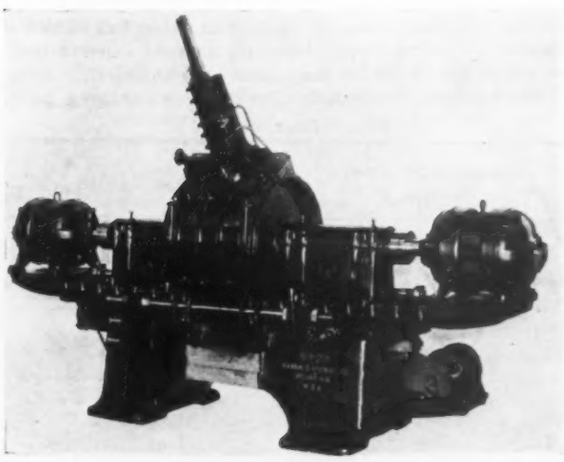


The Swing Is 20-In. Sixteen spindle speeds are provided

Both a lead screw and a feed rod are provided. A small gear-shifting device is arranged so that when the feed rod is being used the lead screw is idle, and vice versa. A stop and reverse rod which extends the length of the bed forms a convenient method of controlling the feed of the tool. The apron is of the standard double wall construction and no bevel gears are used. Spur gears and worm drives carry the longitudinal and cross feeds to the carriage slide. The remaining features of the lathe are similar to those of the smaller machines. The machine is available with three lengths of bed with 48, 72 and 96-in. center distances, respectively. The net weight of the 48-in. machine with regular equipment is approximately 6200 lb. without motor or electrical equipment. Additional equipment includes a taper attachment, oil pan, collets, chucks, etc.

Large Double-Spindle Disk Grinder

An oilgear-feed double-spindle disk grinder of larger capacity than the similar tool described in THE IRON AGE of Sept. 10, 1925, has been added to the line of the Gardner Machine Co., Beloit, Wis.



The Sliding Heads and the Dressing Device Are Operated by Oilgear Feed

The new grinder carries larger grinding members and has a wider opening between heads than the No. 27 machine, previously described, handling work which is 50 per cent heavier. New type Timken adjustable bearings are used, and the spindles of the machine are 3 in. in diameter at bearings and 4 in. between bearings. The grinding members consist either of 26-in. steel disk wheels mounted on rigid reinforcing backing plates, or 24-in. by 6-in. ring wheels, of any desired center opening. These wheels are held in massive chucks. The hood inclosing the grinding members is of cast steel. The machine may be used for either wet or dry grinding.

The sliding heads are operated by the standard type Oilgear feed, and a pressure of 9000 lb. can be obtained between heads. Substantial adjusting screws have been incorporated to permit independent adjustment of each head to compensate for uneven wheel wear. The dressing device on the new grinder is operated by the Oilgear feed, this being necessary because of the difficulty of feeding a dresser by hand over the wide wheel face of a machine of this size.

The front and the rear of this grinder carries a finished pad to permit the application of power-operated cross-feed knees, without altering the base casting. The base is also cast so that both legs are hollow and serve as water reservoirs in case wet grinding is done. A 30-hp. driving motor is employed. The machine occupies floor space of 14 ft. x 10 ft. and weighs approximately 8000 lb.

Business Analysis and Forecast

BY DR. LEWIS H. HANEY

DIRECTOR, NEW YORK UNIVERSITY BUREAU OF BUSINESS RESEARCH

Statistical Data Concerning the Chief Consuming Industries Indicate That:

Activity in chief consuming industries is only moderately reassuring.

Car surplus makes large equipment sales unlikely.

Building volume may possibly decline; structural sales incommensurate with value of contracts awarded.

Automobile production is being curtailed somewhat; machine tool sales off.

Outlook for pipe in petroleum States fairly good.

Agricultural situation only fair; outlook dubious.

Iron and steel exports decrease; imports gain.

THE demand situation in the iron and steel markets has shown little change during the past month, aside from the usual seasonal variations. Everywhere buying has been almost entirely limited to current requirements and it is plainly apparent that consumers anticipate no higher prices. The indications are that they are looking for lower markets.

When one examines the activity in the chief iron and steel consuming industries, one gets an impression which is only moderately reassuring as to the future demand.

1.—The railroads are, on the whole, enjoying very satisfactory traffic, but the outlook is for some further recession in business which promises to cut down the usual seasonal gains in tonnage. The equipment of the carriers is in good shape, there being no car shortage, but rather a good sized surplus. Railway earnings are not large enough to suggest any greater expenditures for maintenance and improvements than are necessary.

2.—Building activity, though it will probably continue large, has plainly passed its peak and is likely to decline somewhat during the year.

3.—Automobile manufacture, in spite of optimistic talk, is being curtailed a little and in our opinion will be rather disappointing to the optimists. In this connection we note that machine tool orders have been declining and that the decline is attributable in part to a slackening in the demand from the automobile industry.

4.—The outlook in the petroleum industry is rather good, with crude production well sustained, but not excessive, and with gasoline stocks probably not too large in view of the anticipated consumption. While the situation does not indicate any large demand for storage tank plates, a good sized consumption of the various kinds of pipe used in the industry may reasonably be expected. Mining activity has shown some tendency to decline, notably in the case of bituminous coal and, in spite of the offsetting increase in anthracite coal production, the outlook in this direction is not particularly favorable.

5.—The agricultural situation is, on the whole, dubious and cannot be called better than fair.

6.—Iron and steel exports decreased in February, notably in tin plate and galvanized sheets. Moreover, imports of iron and steel increased considerably, though the gain were largely confined to pig iron, scrap and semi-finished steel.

Demand Curve Declines

A SHARP decline was registered in the composite demand curve for January, which is the last month for which complete data are available. This was due to a falling off in railroad tonnage, automobile production, exports and in the activity in mining and oil groups. The January level was only about the same as that of January, 1924, but was still above the peak of 1923 and far above January, 1925. February (partly estimated) showed a little recovery, but not enough to indicate any change in trend. We conclude that a long upswing in the activity of iron and steel consuming industries which has lasted from 1924 to the beginning of 1926 has been decisively checked. While the composite demand will doubtless continue large for some time, it is highly improbable that any further sustained expansion will occur immediately. The probabilities are that the first quarter of 1926 will prove to have been the best of the year, with March the peak month in production.

The adjusted curve of ingot production has shown a timely downward trend, although current reports indicate that March output may have been sufficiently large to cause a temporary rise. The most encouraging point

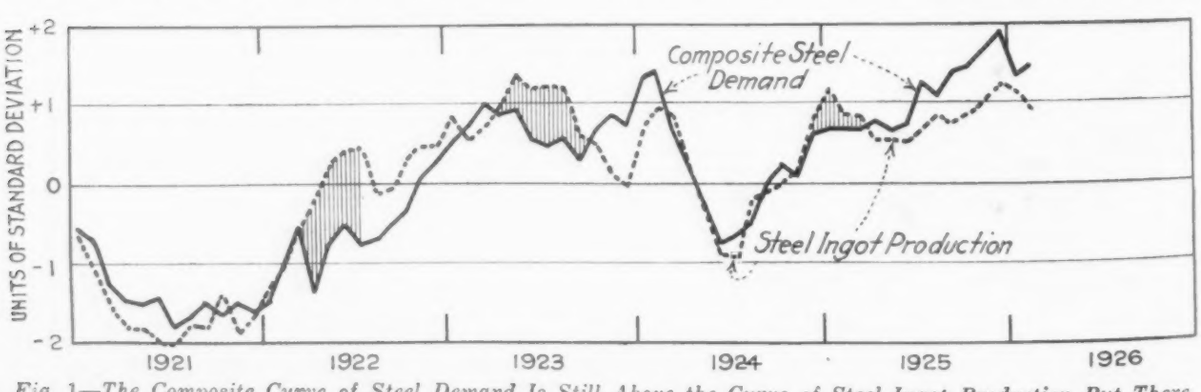


Fig. 1—The Composite Curve of Steel Demand Is Still Above the Curve of Steel Ingot Production But There Are Some Indications That Demand Will Shortly Begin to Decline

In This Issue

Overbuying of consumer's goods on credit may have caused present dullness in many commodities.—No indication that fundamental business conditions are unsound, despite stock market liquidation of speculative pools. —Page 1004.

Machine tool sales affected by rumored cut in automotive production schedules. — Activity in other chief steel consuming industries only moderately reassuring.—Page 998.

Power-driven conveyors triple output of Michigan foundry and reduce labor cost without increasing floor space. — Machine turns out 300 automobile cylinder molds and 80 men turn out 2000 castings a day.—Page 977.

Volume of structural steel sales not commensurate with building contracts awarded. —Adjusted index number of structural bookings now further below index of contracts awarded than at any time in five years.—Page 1001.

Reported that several cast iron pipe makers are to merge.—National Cast Iron Pipe Co., Birmingham, Lynchburg Foundry Co. and Glamorgan Pipe & Foundry Co., both of Lynchburg, Va., are mentioned in connection with Dillon, Read & Co. financial move.—Page 991.

Four-fifths of steel rails now go into replacement, remainder for new track and various industrial uses.—Production of rails over 100 lb. now about three-fifths of all tonnage made; railroads are replacing more light rails with heavy sections.—Page 1005.

First step in introducing iron and steel in residential construction is erection of large number of model houses.—Several now under construction by housing groups in East.—Page 992.

Reports regarding hot shell in Woodward Iron Co. accident wholly untrue.—Shell was sheared off above mantle following furnace slip; no evidence of overheating or buckling. —Page 987.

Two new methods developed for producing ductile welds, using hydrogen or other gases to exclude air.—Claimed that iron can be welded without contamination by oxygen, carbon or nitrogen; alloys containing chromium, aluminum, silicon or manganese can be welded without fluxes and without oxidation.—Page 989.

Suggests use of small sheet steel closets as partitions between rooms.—Would open into either room; save space and could be constructed inexpensively.—Page 993.

Copper-tungsten welding electrode said to prevent mushrooming of electrode tips.— Test with one dressing of ordinary copper die gave 10 welds, use of copper-tungsten inserts claimed to give more than 1000 welds on same work.—Page 995.

Fifty years ago it took 18 to 20 lb. of coal to move 100 tons of cargo one mile by steam. —Today $1\frac{1}{2}$ to 2 lb. of oil perform same work; Naval Research Bureau responsible for many improvements in engine design and specifications for steel for motive units. —Page 983.

Thermal tests of steel houses in England show them warmer in winter and cooler in summer than houses of brick and mortar.— Visiting English artisan explains union hostility to factory production methods.— Page 1003.

Exports of Algerian iron ore have increased 50 per cent in 10 years.—Development of new mines and increased activity in railroad building indicate continued increase in shipments to England and Europe.—Page 987.

March automobile production second highest month ever recorded.—Total of 447,185 cars and trucks far above any other March; 20 per cent over February.—Page 991.

March blast furnace output gains 6.4 per cent (daily rate) over February.—Net gain of ten furnaces during month.—Page 1008.

Shipments of American Brass Co. products in first quarter one-eighth over last year.— Unfilled orders and contracts at end of quarter ahead of year ago by same proportion.—Page 1030.

Late News from Washington.—Comptroller General issues decision compelling all bidders on Navy equipment over $500 to post bond (field purchases) or guarantee; Associated Metal Lath Manufacturers agree to present plan for further simplification May 26; American Engineering Standards Committee appoints seven experts to draw up uniform specifications for zinc-coated products; Interstate Commerce Commission grants application of Jones & Laughlin scale throughout Central Freight Association territory so far as it relates to long and short haul clause of Commerce Act.

CONTENTS

April 8, 1926

New Grouping of Warehouse Prices

WAREHOUSE prices lately have been grouped in the market pages in a more convenient form, and at the same time in close juxtaposition to the market comments for the corresponding iron and steel centers. With this issue, this rearrangement has been expanded to include the numerous New York warehouse prices, ferrous and non-ferrous, listed heretofore on the last reading page every week. The quotations on brass, copper, zinc and other non-ferrous material bought from jobbers will be found as a part of the general non-ferrous market, pages 1029 and 1030, while the remainder accompanies the New York iron and steel market.

Other changes will be made whenever convenience of the reader is likely to be advanced, and we solicit suggestions and comments, to the end of increasing the usefulness of THE IRON AGE.

For News Summary See Reverse Side

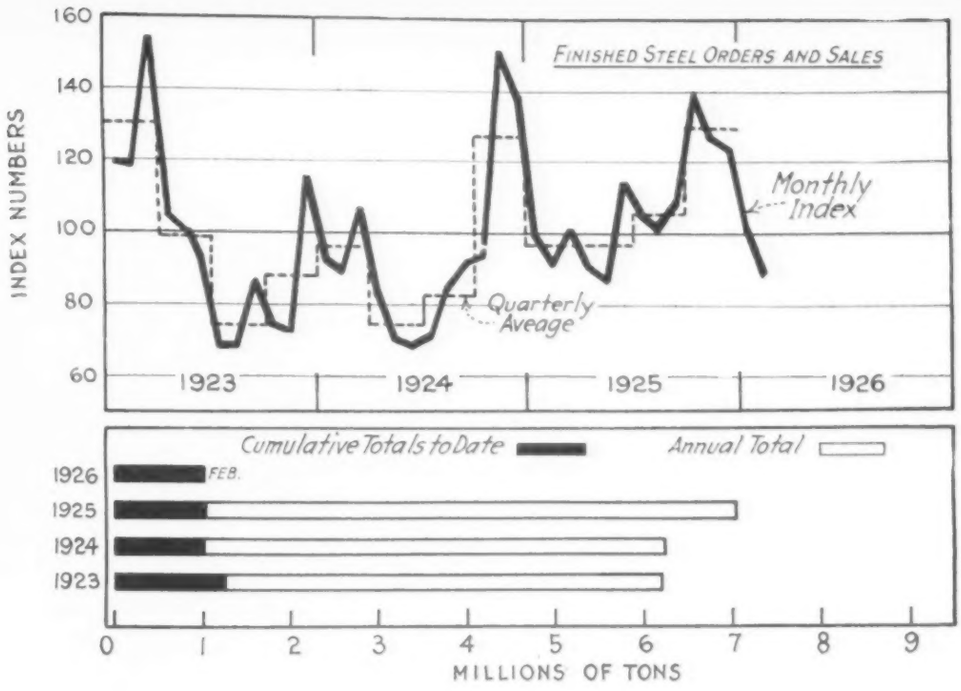


Fig. 2—The Adjusted Monthly Index Number of Finished Steel Orders and Sales Is Now Down to a Point but Slightly Above the Low Mark of 1925 and No Upturn is Yet In Sight

in the situation is that ingot production is still below the level of the composite demand curve. While production is clearly above normal, it is true that demand is also abnormally great. Even with hand-to-mouth buying prevalent, the current needs of steel consumers have been sufficient to support the recent high rate of production. Demand and supply were in favorable balance through February, and it is to be hoped that this condition will continue.

We conclude that the demand for steel is still large, but is turning downward, and the turn looks like a regular cyclical recession. The sagging scrap markets are a sign of the times. An equilibrium between demand and supply might be maintained by curtailing output.

Sales Trend Lower

THE second chart shows that the orders and sales of important items of finished steel fell to a low level in February—the lowest for that month in several years. The decline began in November, which is unusually early, and has continued for four months in succession.

Perhaps the situation is not so bad as this cold statement of facts would suggest. The last quarter of 1925 shows a higher level of orders and sales than in the two preceding years, and the cumulative total for January and February of this year is very close to the figures for 1924 and 1925. Moreover, some decline in January and February is a usual seasonal occurrence.

But when all is said the *trend* is most significant and the fact remains that the February decrease was much larger this year than usual. March will tell the story. If our index declines in that month or shows less than the usual increase, it will be a decidedly unfavorable indication. At present it seems probable that there will be some gain, but that it will be too small to be favorable.

Structural Sales Inadequate

COMPLETE data on building and on structural steel bookings are not available for March. The February figures, however, together with current reports, indicate that a decline is on. Considering the season, February building contracts, in terms of floor space, show one of the sharpest drops on record. The value of building permits also registered a large decline. The figures are above those for the same month last year, but the contracts when adjusted for seasonal variation were the lowest since July, 1925, and the trend appears to be downward.

February bookings of structural steel show a slight increase as usual in that month. They were larger than a year ago, but far under the two preceding years. We again call attention to the fact that such bookings are

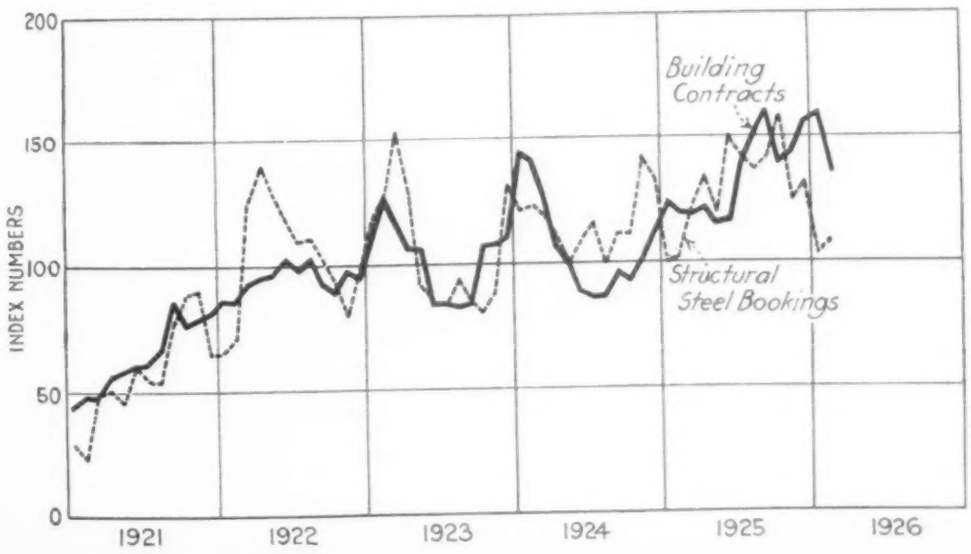


Fig. 3—The Bookings of Structural Steel Usually Parallel the Curve of Building Contracts Awarded Quite Closely but They Are Now Further Below This Index Than at Any Time in Five Years

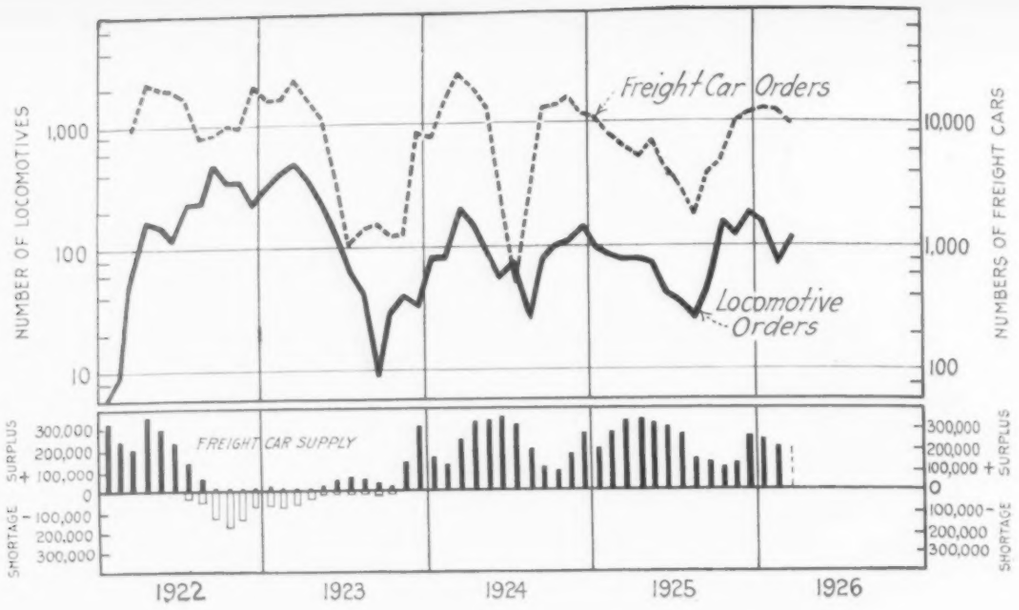


Fig. 4—Locomotive Orders Show an Encouraging Upturn and Freight Car Business Is Still Good Enough to Indicate a Continued Good Demand for Steel From Equipment Manufacturers

much lower than the volume of building contracts would appear to justify. This is true in spite of a sharp decline in contracts. It is thus evident that new building commitments are not going into steel orders.

Usually the bookings of structural steel gain in March. Weekly reports for the last four weeks available, covering the large size jobs, total only 156,000 tons, and as the February bookings ran over 186,000 tons, it seems probable that the March figures will not be very satisfactory.

As shown in Fig. 4, railroad equipment purchases have been fair; car orders are declining, but locomotive orders have held up well.

The trend of freight car orders is clearly downward. Chicago reports indicate that with the closing of the Northern Pacific contract, little new business is in sight. There is, however, no reason to believe that the bottom is falling out of the freight car business. Railroad traffic is still large, the surplus of freight cars in good repair is declining, and car orders in the first quarter have been larger than a year ago.

Locomotive orders recovered sharply in March and recent reports of a large order placed by the Pennsylvania Railroad shows that the demand for this class of equipment is quite satisfactory. The Interstate Commerce Commission reports that shipments of steam and electric locomotives in February amounted to 163, which compares with only 121 in January and 113 a year ago. While unfilled orders decreased, they were considerably larger than in either of the two preceding years. Incidentally, this should mean good business for the producers of boiler tubes.

The schedule of the next installments of Doctor Haney's analyses follows: April 15—Position of iron and steel producers; April 22—The general business outlook; May 13—Activity in consuming industries.

WORLD COAL OUTPUT

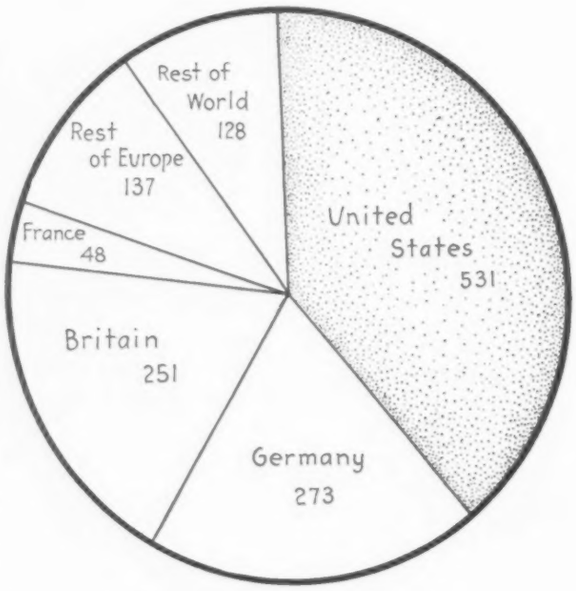
New High Record of Production—United States Provided 39 Per Cent of Total—France and Germany Gain

World production of coal (including lignite) in 1925 is estimated by the United States Bureau of Mines at 1,368,000,000 metric tons, a gain of about 1 per cent over 1924, rather less than 1 per cent over 1923, and nearly 12 per cent over 1922. The total is the highest ever reported. The figures by main producing countries are given in the accompanying table.

World Production of Coal and Lignite
Millions of Metric Tons

	1925	1924	1923	1922
United States	530.8	518.6	596.8	432.7
Canada	11.9	12.4	15.4	13.8
Germany	272.6	243.4	181.1	267.2
Great Britain	250.6	271.4	280.4	253.6
France	48.0	45.0	38.6	31.9
Belgium	23.1	23.4	22.9	21.2
Czechoslovakia	30.6	35.6	28.6	29.6
Poland	28.9	32.3	36.3	24.2
Russia	19.0	13.9	14.5	7.8
Hungary	6.2	7.1	7.7	7.7
Netherlands	6.9	6.4	5.6	4.9
Spain	6.5	6.5	6.4	4.8
Saar	12.9	14.0	9.2	11.2
China	20.0	21.0	20.0	22.7
British India	20.1	21.5	20.0	19.3
Japan	32.0	31.8	30.6	29.3
South Africa	13.7	11.9	11.4	8.8
New South Wales	11.2	11.8	10.6	10.3
The Whole World	1368.0	1355.0	1359.9	1225.5

Anthracite included in the United States figures was 56.35 millions in 1925, against 79.8 in 1924 and 84.7 in 1923. The American total was about three-fourths of Europe's 710 millions. Illustrating the coal dependency of South America upon the rest of the world is the fact that only 2 millions was produced between Panama and Tierra del Fuego.



Coal Production in Millions of Tons

VISIT OF BRITISH WORKERS

Delegation While in Pittsburgh Touch on Unemployment—One Tells of Steel Houses

PITTSBURGH, April 5.—Industrial conditions in Great Britain, notably in England, have been so bad since the war and have improved so slowly as compared with those of other countries which participated in the conflict that a strong movement has started in England to determine the causes. The United States has had such a rapid and full recovery that it naturally has become the field of investigation. Recently the findings of one group of English investigators were made public. A second group now is making a tour of the principal industrial centers of the country. It is composed of eight trade unionists engaged in the British engineering industry. They are making the trip as guests of the London *Daily Mail*, with Fenton McPherson of that publication in charge of the party.

The mission, as it is called, reached Pittsburgh last Wednesday night from Washington, and on Thursday, Friday and Saturday was taken on a tour of several of the plants of the district. On Thursday morning the group inspected the Colfax power plant of the Duquesne Light Co., at Cheswick, Pa., and in the afternoon toured the works of the Mesta Machine Co., West Homestead, Pa. All day Friday was devoted to an inspection of the plant of the Westinghouse Electric & Mfg. Co., East Pittsburgh and Trafford, Pa., while on Saturday the visitors were taken through the Homestead works, Carnegie Steel Co. The party landed in New York about four weeks ago, and its tour has embranced plant visitations in that city, Schenectady, Buffalo, Niagara Falls, Detroit, Chicago, Gary, Washington and Baltimore. Its next stop will be Philadelphia, to be followed by a swing to Cincinnati and a brief stay in New York before embarking for home.

Loud in their praise of the reception and cordial treatment received everywhere, the visitors, accustomed to closed or unionized shops and collective bargaining between employers and representatives of the unions, members of the delegation expressed surprise at finding every plant they visited except one on the open shop basis or conducted on the American plan, under which there is collective bargaining between employers and their own employees through the offices of shop committees.

Wages here are being found to be materially higher than in England for the same kind of work, but there is a higher standard of living here, the cost of which somewhat reduces the difference. The committee has been shown American wage scales, has had opportunity to talk with men on the job at the different plants as to earnings and working conditions and the complete report of the investigations to be published after the men return home should be of considerable interest, although more to British than American workmen, because it should disclose the reasons why American industrial workmen have not more generally espoused unionism as a means toward high wages. American employers have been prompt to recognize the benefits of satisfied workmen through high wages, which is one answer to the laggard tendency toward unionization in this country.

In the group were E. H. Gill, constructional ironworker; Samuel Ratcliffe, machineman; Thomas Murray, patternmaker; William Wareing, fitter; J. T. Kay, iron molder; Charles Wilkinson, turner; Alexander Browning, blacksmith, and A. A. Wildman, tool turner and fitter.

Members of the group are men of high intelligence and can discuss not only the labor movement, but economic and political matters in a way that discloses experience and study. There is opposition to the term dole in connection with the payments made to the unemployed of Great Britain. It was asserted by one member of the delegation that the unemployed were merely drawing from the fund to which they had been contributing since 1911 under the law enacted that year to provide against unemployment and which made compulsory weekly payments by the workmen while employed. The scheme was not governmental charity or an encouragement to indolence, and heavy unemployment at present found its explanation in the fact that the industries of the country could not provide employment for all the men available.

Houses Sheathed with Steel Plates

Thomas Murray, one of the group, a member of the United Patternmakers' Association, and employed by G. & J. Weir, Ltd., Glasgow, discussed interestingly the building of steel houses in Scotland. Mr. Murray has been making the jigs for the Weir steel houses. He said these houses were built of mild steel plates, ⅛ in. thick, attached to stout wood frames of 2 x 4-in. sections, with the inside of the house lined with ¼-in. sandela boarding, a specially compressed paper as hard as vulcanite, which takes beautiful tints in spray painting. The houses are built in blocks of four, each containing three and four rooms, with bathroom and kitchenette, equipped with electric lights, hot and cold water, with all piping of copper standardized and accessible. Houses are of ornate finish with steel framed windows and concrete foundations. Thermal tests in summer and winter had proved the houses to be more comfortable in winter and cooler in summer than houses of brick and mortar construction. The steel is treated to resist corrosion.

Standardized mass production methods are followed both in the construction and sale of the buildings. The builders take contracts only from communities and in large lots, with no orders from individuals. The blocks of four houses are built 12 to the acre in cities and towns and 8 to the acre in country districts. These blocks cost about £1,500. The life of the houses is placed at 60 years. Speed of erection is adduced as one reason for the construction of these houses in Scotland, which is said to be 14 years in arrears in the matter of housing. The work is helping to relieve the unemployment problem in that the firm sponsoring the steel houses is adamant in its opposition to employment of any members of the building trades in their erection. Possibly this position explains strong opposition by the building trades to the steel houses.

Four Countries Bidding on Japanese Building

James H. Stewart & Co., 17 East Forty-second Street, New York, who have the general contract for the construction of a new office building in Tokio, Japan, for Mitsui & Co., are taking bids in the United States, England, Germany and Belgium on 8500 tons of fabricated steel. A peculiar provision of the request for bids is that fabricators consider the method of fabricating which will enable the general contractor to obtain the lowest possible ocean freight rate, the shipping companies exercising the option of charging either by weight or volume. The entire steel fabricating facilities of shops in Japan are not sufficient to handle the work there within the time required for erection.

Less Steel Furniture Shipped

February shipments of steel furniture, as reported by the Department of Commerce, from 32 companies, amounted to $2,183,948. While this is higher than the total for any month of 1925, except December, it is well below the figure for that month and for January, 1926, both of which exceeded $2,400,000. As has been the case for several recent months, orders received exceeded shipments. The total for February was $2,272,555. Unfilled orders at the end of the month amounted to $1,833,862—the highest figure in more than a year. This represents not quite one month's output at the February rate of shipment.

Steel shelving, reported upon separately, provided shipments amounting to $603,144. With three exceptions this was the largest month in more than a year. It compared with $577,364 in January and with $443,514 in February, 1925.

ESTABLISHED 1855

THE IRON AGE

A. I. FINDLEY, *Editor* — W. W. MACON, *Managing Editor*

Member of the Audit Bureau of Circulations and of
Associated Business Papers, Inc.

Published every Thursday by the IRON AGE PUBLISHING CO., 239 West 39th Street, New York
C. S. BAUR, *General Advertising Manager*

F. J. Frank, *President* — George H. Griffiths, *Secretary*

Owned by the United Publishers Corporation, 239 West 39th Street, New York. Charles G. Phillips, *Pres.* A. C. Pearson, *Vice-Pres.* F. J. Frank, *Treas.* H. J. Redfield, *Secy.*

BRANCH OFFICES—Chicago: Otis Building. Pittsburgh: Park Building. Boston: 425 Park Square Building. Philadelphia: 1402 Widener Building. Cleveland: Guardian Building. Detroit: 7338 Woodward Ave. Cincinnati: First National Bank Bldg. Buffalo: 833 Ellicott Square. Washington: 536 Investment Building. San Francisco: 320 Market St. London, Eng.: 11 Haymarket S.W.1.

Subscription Price, United States and Possessions, Mexico, Cuba, $6.00; Canada, $8.50; Foreign, $12.00 per year. Single copy 25 cents.

Entered as second-class matter, June 18, 1879, at the Post Office at New York, N. Y., under the Act of March 3, 1879.
PRINTED IN U. S. A.

The Business Prospect

READERS of these pages will recollect that soon after the beginning of this year we forecasted a halt, or even a recession, in business; and expressed the opinion that any recession would be but mild. With the end of the first quarter of the year everybody knows that what had previously been forecasted has come to pass.

The stock market, however, has experienced much more than a mild recession. After weakness, beginning in February, it suffered something like a debacle in March. This has scared a good many people not directly concerned with the stock market, as such things commonly do, and has produced the apprehension that there may be in the air something ominous for general business. With such a feeling, buying that otherwise would be done is delayed.

It was an hypothesis of the past that the stock market was a barometer of business, its rises and falls preceding those of business by some months. That hypothesis often was found to be sound. It is certain, however, that during the last year the stock market has not been so much a barometer foreshadowing industrial prospects as it has been a mirror reflecting industrial events, and reflecting them with more or less distortion. The rise in the stock market in the latter part of 1925 did not have any adequate industrial foundation and certainly it did not correctly foreshadow anything. It is a reasonable inference that the decline in the stock market in the first quarter of 1926 is equally devoid of any economic meaning.

The rise in the stock market that happened in 1925 was partly founded, soundly, on bringing prices into tune with dividend yields. It was largely founded, however, and especially in the later stage, on senseless vagaries in respect to the benefits to accrue from splits, melons, mergers, etc., and the inveigling of thoughtless people into buying shares whereof they knew nothing, but which they hoped to sell to other persons, equally ignorant, at an advance in the course of a few days. Speculative pools helped things along.

Any kind of a bull market is bound to come to an end, but one of that kind is sure to come to an early end. There is an inevitable day when the pools no longer find customers, when there are no more speculative persons to be seduced. The exigencies of liquidation then develop a slump. This need have no connection with real business beyond the timidity that fear of the unknown may produce.

We think, as we did in January last, that such halt or recession of business as there has been is mild and is associated with the previous overbuying of consumers' goods on credit. Such a condition requires a halting now and then to enable people to catch up with their obligations. In our domestic economy we do not see anything immediately unsound. We do not see the gathering of any clouds that might foreshadow widespread unemployment of labor. We wish that conditions abroad were better so that we might be able to export more goods. But even with curtailment of our foreign markets, we should be happy in the thoughts that our own population is increasing every year, and that per head of population we steadily use more and more goods. In a given year, perhaps this year, we may see a check in the manufacturing of automobiles. It does not look as if there would be any in the operation of them. Nor is there any sign that our movement toward increased electrification is waning.

SO-CALLED close range buying of rolled steel seemingly should add materially to operating costs, seeing that it means relatively small lots of a size and consequently frequent changing of the rolls. The 8-hr. day curiously has been a factor which minimizes the slowing-down influence of roll changing. Under the present shorter work day, there are at least four hours every day available, as for example, between two 10-hr. turns, for replacing rolls for another section of steel. Thus the change is made without standby losses of the rolling crew, which instead is intensively engaged without interruption in its job of production.

ATTENTION is called by *Commerce Reports* to ignorance among American exporters as to the possibilities of "sample post" in the place of parcel post for the shipment of small samples of no commercial value to foreign countries, especially to Mexico and South American countries. In the case of parcel post a customs declaration

must be attached. With sample post none is necessary. When samples are sent parcel post delay and annoyanace are sometimes caused because of the inference in the foreign country that the contents have a value which demands clearance through the usual customs. The weakness of the sample post system is that packages are limited to 4 x 8 x 12 in. in volume and 18 oz. in weight.

Savings and Wealth

GROWTH of the wealth of the country has been due to savings out of income, invested in things of permanent value. The matter of earning power is a detail. If the enterprise produces tangible returns, the returns become a part of income and thus subject to saving. Highways are productive but do not yield a measurable return. Public buildings may not be productive but are part of the wealth.

The criticisms of the past few years, that the people are doing too much installment buying, carries an inference that they are not saving as they used to do. If so, the wealth of the country is not increasing as it used to increase. Many observers, not reasoning from this basis, but endeavoring to make appraisals of the wealth that actually exists from time to time, have reached this conclusion, that we are not adding to our wealth, in annual percentage accretion, as we used to do.

Herein lies an economic problem that seems to be quite new. If productive, or earning, enterprises do not increase in the proportion to total income that used to obtain, then as the country grows the productive capacity does not grow correspondingly, and productive enterprises might expect better profits in future, their profits in the past few years having been disappointing and unsatisfactory. On the other hand, if the people have been extravagant in installment buying, they may not be able to offer in future the patronage that their incomes would warrant when not saddled by debt.

In other words, it would seem that, if there is much unsoundness in the present economic structure, it lies in the position of the people as individuals and not with the productive enterprises. Past experiences have not made such a condition familiar. Depressions in the past have been most commonly ascribed to overexpansion in productive capacity. Now the chief criticism has been that too much money has been going into unproductive things of short life.

Merely the change from investing savings in productive enterprises to the spending of savings in articles for personal use cannot be criticized from an economic or business standpoint. Society has a right to change its habits in this respect, and no amount of preaching, if indulged in, would lead it to revert to the older habits. The question is not whether what the people now want is good for them, but whether they can afford as much as they think, and what will be the results.

We shall not have to wait long to find out how things really are going. If we build too much railroad mileage, as we did twice in the past, it requires a wait of several years for the country to grow up so as to give the investment the proper earning power. If the people buy too much in proportion to their income, it will take only a short time for their circumstances to bring them up with a turn.

Rail Replacements Run Heavy

THE two salient features of the rail production statistics for 1925, published in this issue, are the small tonnage of light rails produced and the large tonnage of sections 100 lb. and over. Total production in the last three years has been as follows:

1923	2,904,516 gross tons
1924	2,433,332 gross tons
1925	2,785,257 gross tons

In the total production thus shown there is no new information of importance, the tonnage swinging much as did steel production in general. It will be noted that, while steel ingot production ran about 2 per cent higher in 1925 than in 1923, rail production ran 4 per cent lower, but the tonnage decrease from 1923 to 1925 was 119,259 tons, and the decrease in exports was 115,719 tons, so that there was substantially the same production for domestic consumption in the two years.

The production of rails under 50 lb. per yard in 1925 was only 163,607 tons, which is the smallest reported since the 155,406 tons reported for 1901, that being of rails under 45 lb., so that it may have been more than a quarter century ago that as small a tonnage of light rails was made as last year. The depression in the coal industry, with many bituminous mines closed for the year and the anthracite mines closed for four months, had no little to do with this showing. It was not a case of users of light rails turning to sections slightly heavier, for the production of rails 50 lb. and heavier but under 85 lb. was also very light, only 219,648 tons for the entire range.

On the other hand, rails 100 lb. and heavier mounted to 1,636,631 tons in 1925, and it was not until 1923 that this weight got into the million-ton rank. Last year's production was indeed 59 per cent of the total weight of all rails.

The percentage in point of mileage would be considerably less and this brings out the point that rail replacements are running heavier in tonnage partly because with the heavier sections more tons are required per mile of replacement. In 1924 the Class I railroads, excluding switching and terminal companies, laid in replacements and betterments 1,791,162 tons of new rails, besides 1,393,374 tons of second-hand rails. This tonnage of new rails was 79 per cent of the year's total production, less exports, plus imports. Allowing for replacements by switching and terminal companies, small roads and electric lines, rail replacements may be regarded as running considerably above 80 per cent of the domestic supply, leaving considerably less than 20 per cent for new track by the steam and electric lines and for the various industrial uses. In the old days, when rail business was one of the chief factors in steel trade prosperity, the bulk of the tonnage went into new track.

The Steel Corporation's production of rails last year was 1,518,424 tons, which is 54.5 per cent of the total production. This compares with 57.6 per cent in 1924, 57.3 per cent in 1923, 51.8

per cent in 1915 and about 65.5 per cent in the Corporation's first two years, 1902 and 1903.

Last year's rail exports, 151,690 tons, were the smallest since 1903, the maximum in all time having been 652,443 tons, in 1919, while 1920 was the next best year. Figures for the past five years are as follows:

	Production	Imports	Exports	Supply
1921	2,178,818	22,048	321,822	1,879,044
1922	2,171,776	26,629	277,090	1,921,315
1923	2,904,516	29,706	267,409	2,666,813
1924	2,433,332	43,358	208,496	2,268,194
1925	2,785,257	36,872	151,690	2,670,439

The supply was by a small margin the largest since 1913. The smallness of last year's exports is interesting in the light of the trade arrangement recently made between foreign rail producers.

An Economic Epitome

THE legislators of the State of New York are considering means to help house-building, there being still a deficiency in housing for the people.

The young people who are marrying on earned incomes of $3,000 to $4,000 per year find it difficult to obtain respectable quarters in which to live, especially if they be of the white-collar class.

The building mechanics of the City of New York and its environs have but just secured a substantial advance in wages all around. Of course this is not promotive of house-building.

The building mechanics who now get $14 per day, or potentially $3,500 to $4,000 per year, are in scarce supply, else they would not have secured their recent raise. That came about through the working of the law of supply and demand, not from any improvement of efficiency or ability to elevate the standard of living by increased production, as many would have us believe.

The New York carpenters and bricklayers now earn more than many young engineers graduated from good technical schools—also more than many of the minor industrial executives, many of the school teachers, clerks, etc. It would be thought that some of those would change their occupation to carpentry, bricklaying, etc.

Any labor leader if interrogated on this subject would answer that a long apprenticeship is necessary to make an artisan; that there are many intricacies to be mastered. The number of apprentices having been limited and the older artisans having been dying off year by year, the shortage is easily explained.

Experienced engineers tell us, however, that the training required to make good workers in many trades is greatly over-estimated; that if long time of training be necessary it is owing to the inferior intelligence of the men being trained; that in many works requiring skilled labor, they would rather break in a crew of green men and train them right than have to deal with old hands imbued with bad practices.

Whatever be the merits of those views, it is certain that the supply of building mechanics can not be augmented from the ranks of young engineers, clerks, etc., for the simple reason that they could not get union cards. If they tried to exercise their American right to work at what they could the union men would (1) strike, or (2) beat them up with monkey wrenches, or (3) do both.

The same situation exists in respect to railroad labor, anthracite coal mining, and many other vocations. Consequently the law of supply and demand operates as to a large part of our labor only with restrictions, especially on the side of supply. It follows, therefore, that such protected labor can in a measure name its own wage, at the expense of everybody else.

The factory worker can in general increase his wage only by increasing production, to make him do which his bosses have to invent for him, guide, manage, educate and often wheedle him.

The farmer has no union to produce protective restrictions. On the other hand he does not want to be guided and managed, preferring to live his own independent and inefficient life. He suffers from other conditions that need not be resummarized here. Sufficient to say that he is the victim upon whom others fatten.

The high wages that some classes enjoy are therefore only partly drawn from increased productivity. In large part they are drawn from other classes of workers.

But, however they be drawn, they are wholly to be spent. The spending of them is largely for making and operating the twenty million automobiles of the country, the radio-telephonic instruments, electrical appliances for the homes, for jewelry, furs and silk.

The responsive producer makes such things—gasoline, rubber tires, rayon—that artisans, miners, railroad men, factory workers, etc., want to spend their money for. The wise investor goes in for the shares of such producers. So the money comes back, not always to the same people, and prosperity reigns, or seems to. The man who is mulcted for the painting of his house may get his money back in dividends on his shares in a petroleum refining company; while, if he is a stockholder in a railroad company, he will not, being lucky if he gets a little more than the interest rate of a savings bank. Regulation is arranged to take care of public utility investments and see that the investor does not get very much out of them.

The man who wisely selects his investments for a big return, i. e., out of the more popular consumers' goods, does not, however, get away with it altogether. The income tax gatherers snatch from him a good part of it. The surtax system is designed especially for that. This extract goes back to the people whence it came by reducing the expense of government to them, which is equivalent to paying it over to them.

Thus the cycle is completed. There is great economic dislocation in it. There is great economic waste in it. Many people have a gorgeous improvement in living out of it. Others have increased difficulty in getting along. The national saving is diminished. We know that we are not getting the improvement in transportation facilities that we need. It is to be feared that our agricultural plant is being allowed to run down. Perhaps the upkeep of other property is being neglected. But such things hardly enter into the consideration of a year or two. The wise man does nothing but swim with the tide, keeping handy a life-preserver for possible help in eddies and undertows.

Grants Fourth-Section Relief on Mileage Scale Basis Throughout C.F.A. Territory

WASHINGTON, April 6.—The Interstate Commerce Commission in an order made public on Thursday of last week, granted the application of railroads in Central Freight Association territory to apply the Jones & Laughlin mileage scale throughout that territory and to Cumberland, Md., so far as it relates to the fourth section (long-and-short haul) clause of the Commerce Act. The relief granted will relate to the so-called circuitous routes. The order also provides that effective Nov. 1, the relief authorized shall not apply "(1) where the distance over the short line or route is 200 miles or less and the longer line or route is more than 70 per cent circuitous, and (2) where the distance over the short line or route exceeds 200 miles and the longer line or route is more than 50 per cent circuitous, except that where the short line or route exceeds 200 miles and the longer line or route does not exceed 340 miles, relief will apply to such line or route even though it is more than 50 per cent circuitous."

Railroads in Illinois Freight Association territory, as pointed out in THE IRON AGE of March 18, page 783, also have asked the commission for fourth-section relief throughout that territory on the Jones & Laughlin mileage scale basis, and likewise have sought the right to extend the groups of origin to Milwaukee and St. Louis instead of confining the point of origin to the Chicago district.

The Jones & Laughlin mileage scale is to become effective on May 29, according to an order of the commission.

Zinc Coated Products to Have Uniform Specifications

WASHINGTON, April 6.—Zinc coating of iron and steel will be dealt with by a sectional committee of the American Engineering Standards Committee which has been organized with a view to drawing up uniform specifications for zinc coated products. The work will be carried on by a committee formed of seven technical experts. H. S. Rawdon, Ann Arbor, Mich., chief of the section on Optical Metallurgy, Bureau of Standards, has been appointed a member of the committee and will have charge of formulating methods of testing products in this category. This committee will prepare acceptance tests which can be embodied in the standard specification tests for products which are zinc coated.

Metal Lath Manufacturers Consider Further Simplification

WASHINGTON, April 6.—Metal lath manufacturers representing more than 75 per cent of the estimated annual production of 40,000 tons met here on Wednesday of last week to consider further reduction of sizes and weights. The simplification program which went into effect on Jan. 1, 1924, reduced the sizes and weights from 125 to 24, and it was declared that recommendations then made have been followed to an extent of 99 per cent. The conference was presided over by H. R. Colwell of the Division of Simplified Practice, Department of Commerce. It appointed a committee comprising W. C. Conger, Truscon Steel Co., Youngstown, and the Simplification Committee of the Associated Metal Lath Manufacturers; John Bowditch, Jr., Youngstown Pressed Steel Co., Warren, Ohio, representing the manufacturers; H. R. Eastwood, Southern Building & Supply Co., Washington; James W. Pearce, Pearce Fireproofing Co., Philadelphia, representing distributers; LeRoy Kern, American Institute of Architects; J. M. Krafft, Krafft-Murphy Co., Washington; W. J. McSorley, Building Trades Division, American Federation of Labor, and a member of the International Association of Plastering Contractors, representing consumers. This committee at a meeting on May 26 will present specific recommendations as to further reductions. The recommendations will be submitted to the entire industry for acceptance. Wharton Clay, commissioner of the Associated Metal Lath Manufacturers, has estimated that simplification has relieved dealers, distributers and producers of an investment of more than $2,000,000, representing stocks formerly carried.

Bond Required on Navy Purchases

WASHINGTON, April 6.—To conform to two recent decisions of the Comptroller General, an important change has been made in the method of making purchases in the field service of the Navy. The new instructions require that all bids on Navy business where the amount exceeds $500 shall be covered by a guaranty. The bidder has the option of furnishing an annual guaranty, or a particular guaranty, a certified check, or bond of the United States in the stipulated amount. Heretofore this guaranty was required only on bids on consolidated purchase proposals sent out from the Bureau of Supplies and Accounts.

The new instructions also require that a bond be furnished by the contractor on all field purchases over $500. The contractor has the option of furnishing an annual bond, or a particular bond, or a certified check, or United States bonds in the stipulated amount. This is a new requirement. Heretofore the bond was not required on field purchases under $2,500, although the bond has always been required on Bureau of Supplies and Accounts direct purchases exceeding $500. These new instructions have gone into effect.

Would Eliminate Import Rate on Steel from Gulf to St. Louis

WASHINGTON, April 6.—Southern railroads have filed with the Interstate Commerce Commission a tariff supplement, proposed to become effective April 23, which would eliminate the import rate of 41.5c. per 100 lb. on special iron and steel articles from Texas Gulf Ports to St. Louis. The tariff would have the effect of restricting the routing so that this rate would not apply by lines operating west of the Mississippi River passing through Louisiana, Arkansas and Oklahoma. Cancellation of the 41.5c. rate from Texas Gulf ports would result in the application of the higher domestic rates. The carriers contended that there was no movement of these iron and steel products through Texas ports, but strong protest has been made against application of the tariff, the suspension of which has been asked. The Markle Steel Co., Houston, Tex., and the Capital Steel & Iron Co., Oklahoma City, Okla., have protested to the commission against the tariff. The latter company said that it had purchased 2000 tons of steel from foreign markets to be delivered through Houston which will not arrive until April, May and June.

Wide Strip Mill to Be Built by Weirton Steel Co.

The Weirton Steel Co. has further broadened its construction program to include a new strip mill, building of which is to start immediately and to be given precedence in the program over the new tube mill and the extension to the company's sheet mill. The order for the mill already has been placed with the United Engineering & Foundry Co., Pittsburgh. It is to be a continuous mill capable of rolling materially wider strips than can be produced in the company's present plant. The building to house the mill will occupy a site 400 x 1500 ft., adjacent to the present plant. The new unit will approximately double the company's present productive capacity and will give employment to between 1200 and 1500 more men. Its cost will be $5,000,000 and make the total amount to be expended for plant enlargement $20,000,000.

Meanwhile work is proceeding actively on the new coke ovens, blast furnace and open-hearth furnaces now under construction. Erection of the steel work of the new blast furnaces will start this week, to be followed by the placing of the steel for the open-hearth furnaces.

March Iron Output Expands

Daily Rate Larger Than February by 6624 Tons or 6.4 Per Cent—Net Gain of 10 Furnaces—Total Number of Furnaces Reduced

COMPLETE data from all furnaces active during March show that the production of pig iron made a substantial increase over that of February. The daily rate last month was 6624 tons in excess of that of February, an increase of about 6.4 per cent. The estimated March output, published in THE IRON AGE last week, as based on the production of furnaces which made 92 per cent of the February output, was 110,640 tons per day, as contrasted with an actual production of 111,032 tons per day. The March increase of 6.4 per cent compares with a decrease in February of 2.4 per cent and an increase in January of 2 per cent.

The production of coke pig iron for the 31 days of March was 3,441,986 gross tons, or 111,032 tons per day, as compared with 2,923,415 tons, or 104,408 tons per day for the 28 days in February. The March daily rate as well as the total was the largest since March, 1925. It, however, was less than for any March in the past three years.

There was a net gain of 10 furnaces during March, 17 having been blown in and 7 shut down. This contrasts with a net gain of 2 in February and a loss of 10 in January. The March gain is the largest since the gain of 14 furnaces in December and November last year respectively.

Capacity Active April 1

The number of furnaces active on April 1 was 236, with an estimated daily capacity of 114,000 tons. On March 1 there were 226 furnaces in blast, having an

Daily Rate of Pig Iron Production by Months—Gross Tons

	Steel Works	Merchant*	Total
March, 1925	90,741	24,234	114,975
April	83,827	24,805	108,632
May	74,415	20,127	94,542
June	70,452	18,663	89,115
July	65,715	20,221	85,936
August	68,530	18,711	87,241
September	70,300	20,573	90,873
October	76,464	21,064	97,528
November	77,262	23,505	100,767
December	81,552	23,301	104,853
January, 1926	83,867	23,107	106,974
February	81,148	23,260	104,408
March	85,841	25,191	111,032

*Includes pig iron made for the market by steel companies.

Pig Iron Production by Districts, Gross Tons

	March (31 days)	Feb. (28 days)	Jan. (31 days)	Dec. (31 days)
New York	232,816	201,751	232,265	194,091
New Jersey	.....	.....	.....	.....
Lehigh Valley	93,037	75,728	84,111	83,016
Schuylkill Valley	76,771	67,240	72,396	71,288
Lower Susquehanna and Lebanon Valleys	43,112	39,516	44,637	40,086
Pittsburgh district	750,190	642,236	765,621	765,844
Shenango Valley	119,090	99,357	120,496	130,919
Western Pa.	169,039	118,490	121,523	115,105
Maryland, Virginia and Kentucky	84,488	71,724	85,479	79,209
Wheeling district	125,071	121,326	124,663	121,065
Mahoning Valley	322,570	263,866	306,921	278,935
Central and Northern Ohio	322,698	260,458	313,769	324,229
Southern Ohio	50,000	42,864	48,227	44,604
Illinois and Indiana	656,524	544,069	584,812	580,473
Mich., Minn., Mo., Wis., Colo. and Utah	140,188	134,691	151,715	151,398
Alabama	244,403	228,799	248,274	257,705
Tennessee	11,989	11,300	11,292	12,481
Total	3,441,986	2,923,415	3,316,201	3,250,448

Coke Furnaces in Blast

Furnaces	Total Stacks	April 1—In Blast	April 1—Capacity per Day	March 1—In Blast	March 1—Capacity per Day
New York:					
Buffalo	21	15	6,725	15	6,545
Other New York	5	3	1,120	2	660
New Jersey	4	0	....	0	....
Pennsylvania:					
Lehigh Valley	12	7	2,925	6	2,450
Spiegeleisen	2	2	235	2	255
Schuylkill Valley	12	7	2,780	6	2,400
Susquehanna Valley	8	3	1,165	3	1,190
Ferromanganese	1	0	....	0	....
Lebanon Valley	4	1	225	1	215
Ferromanganese	2	0	....	0	....
Pittsburgh District	52	42	23,890	41	22,540
Ferro. and Spiegel	4	3	400	3	400
Shenango Valley	14	7	3,680	8	3,960
Western Pa.	19	11	5,345	9	3,720
Ferro. and Spiegel	2	2	300	2	310
Maryland	6	6	2,085	5	2,030
Wheeling District	12	8	4,035	9	4,330
Ohio:					
Mahoning Valley	26	20	10,820	18	9,315
Central and Northern	22	20	10,970	16	9,300
Southern	13	5	1,615	5	1,720
Illinois and Indiana	42	34	21,225	33	19,570
Mich., Wis. and Min.	12	8	2,640	8	3,010
Colo., Mo. and Utah	7	4	1,830	4	1,800
The South:					
Virginia	17	1	250	1	150
Kentucky	7	1	385	1	360
Alabama	34	23	9,000	24	8,095
Ferromanganese	1	1	75	1	75
Tennessee	12	2	280	3	400
Total	373	236	114,000	226	104,800

Production of Steel Companies for Own Use—Gross Tons

	Total Iron. Spiegel and Ferro		Spiegeleisen and Ferromanganese* 1925		1926	
	1925	1926	Fe-Mn	Spiegel	Fe-Mn	Spiegel
Jan.	2,692,537	2,599,876	23,578	5,418	29,129	7,746
Feb.	2,539,785	2,272,150	18,184	4,910	22,309	7,084
Mar.	2,812,995	2,661,092	20,062	5,449	24,064	7,339
Apr.	2,514,828	.....	21,448	5,341	....	....
May	2,306,887	.....	22,679	5,294	....	....
June	2,113,566	.....	19,836	4,972	....	....
½ year	14,980,598	.....	125,787	31,384	....	....
July	2,037,160	.....	16,614	5,074	....	....
Aug.	2,124,439	.....	18,867	4,939	....	....
Sept.	2,109,205	.....	18,381	5,162	....	....
Oct.	2,370,382	.....	21,421	5,071	....	....
Nov.	2,317,888	.....	25,490	6,375	....	....
Dec.	2,528,120	.....	26,072	7,756	....	....
Year	28,467,792	.....	252,632	65,761	....	....

*Includes output of merchant furnaces.

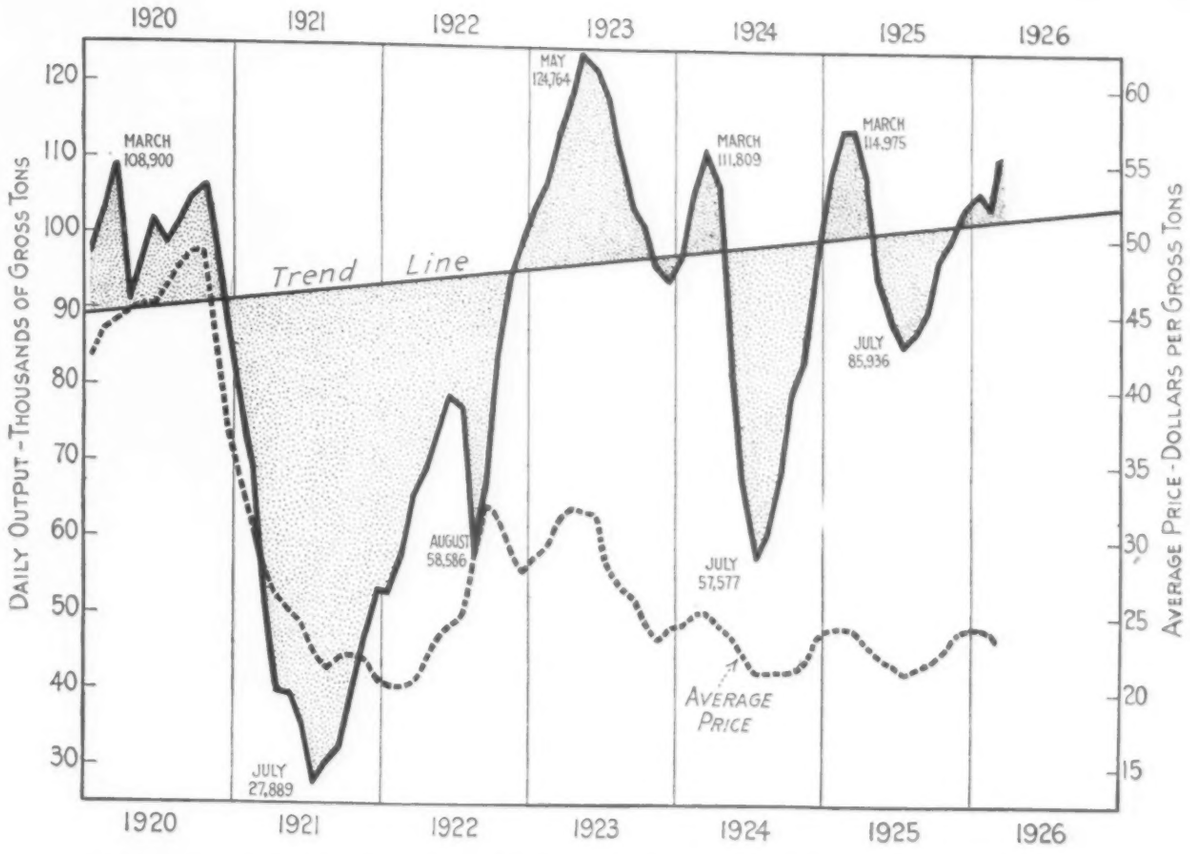
Production of Coke and Anthracite Pig Iron in United States by Months, Beginning Jan. 1, 1924—Gross Tons

	1924	1925	1926
Jan.	3,018,890	3,370,336	3,316,201
Feb.	3,074,757	3,214,143	2,923,415
Mar.	3,466,086	3,564,247	3,441,986
3 mo.	9,559,733	10,148,726	9,681,602
Apr.	3,233,428	3,258,958	.....
May	2,615,110	2,930,807	.....
June	2,026,221	2,673,457	.....
½ year	17,434,492	19,011,948	.....
July	1,784,899	2,664,024	.....
Aug.	1,887,145	2,704,476	.....
Sept.	2,053,264	2,726,198	.....
Oct.	2,477,127	3,023,370	.....
Nov.	2,509,673	3,023,006	.....
Dec.	2,961,702	3,250,448	.....
Year*	31,108,302	36,403,470	.....

*These totals do not include charcoal pig iron. The 1925 production of this iron was 196,164 tons.

Daily Average Production of Coke and Anthracite Pig Iron in the United States by Months Since Jan. 1, 1922—Gross Tons

	1922	1923	1924	1925	1926
Jan.	53,063	104,181	97,384	108,720	106,974
Feb.	58,214	106,935	106,026	114,791	104,408
Mar.	65,675	113,673	111,809	114,975	111,032
Apr.	69,070	118,324	107,781	108,632	.....
May	74,409	124,764	84,358	94,542	.....
June	78,701	122,548	67,541	89,115	.....
½ year	66,578	115,147	95,794	105,039	.....
July	77,592	118,656	57,577	85,936	.....
Aug.	58,586	111,274	60,875	87,241	.....
Sept.	67,791	104,184	68,442	90,873	.....
Oct.	85,092	101,586	79,907	97,528	.....
Nov.	94,990	96,476	83,656	100,767	.....
Dec.	99,577	94,225	95,539	104,853	.....
Year	73,645	109,713	85,075	99,735	.....



Daily Pig Iron Output in March About 6.4 Per Cent More Than in February; Prices Slightly Lower

Inclined line represents the gradually increasing theoretical needs of the country, and thus shows production is now above the so-called normal. Dotted line represents the average price in dollars per gross ton of No. 2 Southern at Cincinnati, No. 2 at Chicago and No. 2X at Philadelphia

estimated capacity of 104,800 tons per day. Of the 17 furnaces blown in during March, 9 were those of independent steel companies, 4 were Steel Corporation stacks and 4 were merchant units. Of the 7 furnaces shut down, 5 were merchant stacks and one each were Steel Corporation and independent steel company units.

Manganese Alloy Output

The ferromanganese output for March was 24,064 tons, comparing with 22,309 tons in February and 29,129 tons in January. The March spiegeleisen production was 7339 tons, or near the average for the January and February output of 7746 tons and 7084 tons respectively.

Total Furnaces Reduced

The total of furnaces in the country now stands at 373 as against 375 on March 1. The Sharon furnace in the Shenango Valley and one Mingo furnace in the Wheeling district, both Carnegie Steel Co. furnaces, as well as one Hattie Ensley furnace of the Sloss-Sheffield Steel & Iron Co. in Alabama, have been ordered dismantled. The new furnace of the Hudson Valley Coke & Products Corporation at Troy, N. Y., was added to the list. This is a net loss of 2 furnaces.

Furnaces Blown In and Out

Among the furnaces blown in during March were the following: The new furnace of the Hudson Valley Coke & Products Corporation, Troy, N. Y.; A furnace of the Bethlehem Steel Corporation at the Bethlehem plant in the Lehigh Valley; A furnace at the Coatesville plant of the Bethlehem Steel Corporation in the Schuylkill Valley; the Clinton furnace in the Pittsburgh district; E and J furnaces at the Cambria plant of the Bethlehem Steel Corporation in western Pennsylvania; B furnace at the Maryland plant of the Bethlehem Steel Corporation; No. 3 Ohio furnace of the Carnegie Steel Co. and the Mattie furnace of the A. M. Byers Co. in the Mahoning Valley; two River furnaces of the McKinney Steel Co., the Upson furnace and one furnace of the National Tube Co. in central and northern Ohio; No. 4 South Chicago furnace of the Illinois Steel Co. in the Chicago district; No. 1 Mayville furnace of the Youngstown Sheet & Tube Co. in Wisconsin; one Detroit furnace of M. A. Hanna Co. in Michigan; No. 3 Ensley furnace of the Tennessee Coal, Iron & Railroad Co. in Alabama.

Among the furnaces blown out or banked during March were the following: No. 1 Shenango furnace in the Shenango Valley; the Top Mill furnace of the Wheeling Steel Corporation in the Wheeling district; the Thomas furnace in Wisconsin; one Detroit furnace of the M. A. Hanna Co. in Michigan; No. 4 Ensley furnace of the Tennessee Coal, Iron & Railroad Co. and the Woodward furnace of the Woodward Iron Co., which exploded during the month, in Alabama, and the Johnson City furnace in Tennessee.

Chemical Equipment Makers Will Meet at Cleveland

A program of technical sessions will be held under the auspices of the Cleveland Engineering Society and the Associated Technical Societies of Cleveland, May 10 to 15, during a national exposition of chemical equipment to be held at the Cleveland Public Auditorium under the auspices of the Association of Chemical Equipment Maunfacturers. The technical meetings will be held at the Hollenden Hotel. The "Benefication of Ores" and "Corrosion Resistants" are subjects that will be discussed at the Wednesday sessions.

Iron and Steel Markets

Pig Iron Breaks on 5000-Ton Sale

First Test in Months—Steel Production Remains Remarkably High—Large Structural Steel Bookings—Complete March Pig Iron Output

A BREAK of $1.50 a ton on foundry iron and $1 a ton on other grades occurred in the Pittsburgh and the Valleys. It was the result of a 5000-ton purchase by a sanitary ware manufacturer, which gave the market its first real test in months. Foundry and basic iron are now $19, Valley furnace. The importance of the transaction from the steel consumer's standpoint lies in a sentimental effect on the steel market growing out of the old-time attitude of accepting pig iron as an accurate barometer of business, in spite of the small amount of merchant iron now going into steel manufacture.

At Cleveland and Cincinnati there have been declines of 50c. a ton on foundry grades and in Chicago of $1. Buffalo and eastern Pennsylvania prices remain firm, but New York State furnaces are underselling Buffalo in the New England market. Foreign iron, selling at $1 to $2 a ton below domestic iron, is still an important factor along the Atlantic seaboard, but imports were less at some points in the first quarter than in the corresponding period of 1925.

Production of steel so far in April has been maintained at the remarkably high rate of March. The output of the larger companies has, if anything, been increased in the week, with the Steel Corporation itself at substantially 100 per cent of practical capacity.

New business, except in the Chicago district, shows some signs of falling off. But the release of specifications and the new orders combined are giving full rolling schedules a number of weeks ahead. There are no signs of additions to supplies of semi-finished steel, and this in the face of numerous new production records reported from three production centers.

As has been true for months, steel makers find each week's total demands sufficient to equal more or less the tonnage of shipments, so that scheduling of mills can only be arranged a few weeks in advance. A curtailment from the automobile builder is offset by increased requirements from the agricultural implement maker. Or, as in the case of companies having a variety of products, a reduction of railroad equipment buying is balanced, as at present, by heavy specifications for track materials.

Fabricated steel bookings of the week are unusually large, 40,000 tons, and comprise projects largely requiring each less than 1000 tons. Of concrete reinforcing bars, a Brooklyn warehouse will take 1800 tons, to be rolled by a Pittsburgh mill.

The Pennsylvania Railroad has ordered 200 locomotives and may buy upward of 2000 cars next week. The number of cars ordered in the week was only 500. All told, probably not over 4000 cars are under inquiry throughout the country.

Complete returns from the blast furnaces of the country bear out fully the showing of the estimates published last week. The output for March was 3,441,986 gross tons, or 111,032 tons a day, compared with 2,923,415 for February, or 104,408 tons a day. Of the daily increase of 6624 tons, steel company furnaces contributed 4693 tons and merchant furnaces 1931 tons.

The country has now a total of 373 furnaces, and of these 236 were in blast on April 1, making iron at the rate of 114,000 tons a day. On March 1, 226 were active at a 104,800-ton daily rate.

Seventeen furnaces went in and seven went out in the month. Since April 1 a steel company and a merchant furnace have been added to the active list. Of the furnaces going in last month the Steel Corporation and the merchant producers each supplied four and the independents nine, including five of the Bethlehem Steel Corporation.

The firmness of steel plates is reaffirmed in all centers and in Chicago demand for universal plates has extended deliveries ten weeks. For tanks for a northern Indiana refinery 25,000 tons is under inquiry and 6500 tons will be needed for barge work for the Canadian Pacific Railroad.

The American Sheet & Tin Plate Co. has started up its New Kensington, Pa., mills, after an idleness of almost two years.

The working of demand has brought quotations of $45 and $47 for tie plates from Western mills, the higher price to railroads east of Chicago.

Prices of sheets are hardly as firm as in recent weeks, concessions of $2 on black, galvanized and blue sheets being not uncommon, and some mills quoting a Valley base instead of Pittsburgh.

Large buyers are able to secure cold rolled strip steel at 3.75c. per lb., Cleveland or Pittsburgh, against the regular quotation of 3.90c.

The extra of $1.50 a ton on wire rods $\frac{3}{8}$ in. and larger has been eliminated, all sizes now being $45 per ton, Pittsburgh and Cleveland.

Declines on scrap were rather general in several centers, with a reduction of 25c. a ton on heavy melting steel at Chicago and Cleveland.

THE IRON AGE composite price for pig iron has dropped to $20.71 from $21.38 for the preceding four weeks. This is the lowest level since the last week of October.

Finished steel remains at 2.439c. per lb., no change having been recorded in any of the seven component items making up THE IRON AGE composite price. It is nearly 4 per cent below the level of a year ago, but is 2 per cent above the low of last summer.

A Comparison of Prices

Advances Over the Previous Week in Heavy Type, Declines in Italics
At Date, One Week, One Month, and One Year Previous

For Early Delivery

Pig Iron, Per Gross Ton:	Apr. 6, 1926	Mar. 30, 1926	Mar. 9, 1926	Apr. 7, 1925
No. 2X, Philadelphia‡	$23.26	$23.26	$23.26	$23.26
No. 2, Valley furnace†	*19.00*	20.50	20.50	20.50
No. 2, Southern, Cin'ti†	25.69	25.69	25.69	24.05
No. 2, Birmingham, Ala.†	22.00	22.00	22.00	20.00
No. 2 foundry, Chicago*	*22.00*	23.00	23.00	23.00
Basic, del'd, eastern Pa.	21.75	21.75	22.25	22.75
Basic, Valley furnace	*19.00*	20.00	20.00	20.50
Valley Bessemer, del'd P'gh	*21.76*	22.76	22.76	23.26
Malleable, Chicago*	*22.00*	23.00	23.00	23.00
Malleable, Valley	20.50	20.50	20.50	21.00
Gray, forge, Pittsburgh	*20.76*	21.76	21.76	21.76
L. S. charcoal, Chicago	29.04	29.04	29.04	29.04
Ferromanganese, furnace	88.00	88.00	100.00	115.00
Rails, Billets, etc., Per Gross Ton:				
O.-h. rails, heavy, at mill	$43.00	$43.00	$43.00	$43.00
Light rails at mill	34.00	34.00	35.00	40.32
Bess. billets, Pittsburgh	35.00	35.00	35.00	35.50
O.-h. billets, Pittsburgh	35.00	35.00	35.00	35.50
O.-h. sheet bars, P'gh	36.00	36.00	36.00	37.00
Forging billets, base, P'gh	40.00	40.00	40.00	41.00
O.-h. billets, Phila.	40.30	40.30	40.30	41.67
Wire rods, Pittsburgh	45.00	45.00	45.00	48.00
	Cents	Cents	Cents	Cents
Skelp, gr. steel, P'gh, lb.	1.90	1.90	1.90	2.00
Finished Iron and Steel,				
Per Lb. to Large Buyers:	Cents	Cents	Cents	Cents
Iron bars, Philadelphia	2.22	2.22	2.22	2.28
Iron bars, Chicago	2.00	2.00	2.00	2.10
Steel bars, Pittsburgh	2.00	2.00	2.00	2.10
Steel bars, Chicago	2.10	2.10	2.10	2.20
Steel bars, New York	2.34	2.34	2.34	2.44
Tank plates, Pittsburgh	1.90	1.90	1.85	2.00
Tank plates, Chicago	2.10	2.10	2.10	2.30
Tank plates, New York	2.24	2.24	2.14	2.34
Beams, Pittsburgh	1.90	1.90	1.90	2.10
Beams, Chicago	2.10	2.10	2.10	2.30
Beams, New York	2.24	2.24	2.24	2.34
Steel hoops, Pittsburgh	2.50	2.50	2.50	2.40

*The average switching charge for delivery to foundries in the Chicago district is 61c. per ton.
†Silicon, 1.75 to 2.25. ‡Silicon, 2.25 to 2.75.

Sheets, Nails and Wire,	Apr. 6, 1926	Mar. 30, 1926	Mar. 9, 1926	Apr. 7, 1925
Per Lb. to Large Buyers:	Cents	Cents	Cents	Cents
Sheets, black, No. 28, P'gh	3.25	3.25	3.25	3.40
Sheets, black, No. 28, Chicago dist. mill	3.45	3.45	3.45	3.60
Sheets, galv., No. 28, P'gh	4.50	4.50	4.50	4.50
Sheets, galv., No. 28, Chicago dist. mill	4.70	4.70	4.70	4.70
Sheets, blue, 9 & 10, P'gh	2.50	2.50	2.50	2.60
Sheets, blue, 9 & 10, Chicago dist. mill	2.60	2.60	2.60	2.70
Wire nails, Pittsburgh	2.65	2.65	2.65	2.85
Wire nails, Chicago dist. mill	2.70	2.70	2.70	2.95
Plain wire, Pittsburgh	2.50	2.50	2.50	2.60
Plain wire, Chicago dist. mill	2.55	2.55	2.55	2.70
Barbed wire, galv., P'gh	3.35	3.35	3.35	3.55
Barbed wire, galv., Chicago dist. mill	3.40	3.40	3.40	3.65
Tin plate, 100 lb. box, P'gh	$5.50	$5.50	$5.50	$5.50
Old Material, Per Gross Ton:				
Carwheels, Chicago	*$16.50*	$17.00	$17.00	$16.00
Carwheels, Philadelphia	17.50	17.50	17.50	18.00
Heavy steel scrap, P'gh	17.00	17.00	18.00	17.50
Heavy steel scrap, Phila.	16.50	16.50	15.50	15.00
Heavy steel scrap, Ch'go	*13.75*	14.00	14.00	15.00
No. 1 cast, Pittsburgh	*16.50*	17.00	17.00	18.00
No. 1 cast, Philadelphia	17.50	17.50	17.50	17.50
No. 1 cast, Ch'go (net ton)	*16.25*	17.00	17.00	17.50
No. 1 RR. wrot, Phila.	17.50	17.50	17.00	18.00
No. 1 RR. wrot, Ch'go (net)	*12.75*	13.00	13.00	13.00
Coke, Connellsville, Per Net Ton at Oven:				
Furnace coke, prompt	$3.00	$3.00	$3.25	$3.15
Foundry coke, prompt	4.25	4.25	4.50	4.00
Metals,				
Per Lb. to Large Buyers:	Cents	Cents	Cents	Cents
Lake copper, New York	14.12½	14.12½	14.37½	13.75
Electrolytic copper, refinery	**13.75**	13.62½	13.95	13.37½
Zinc, St. Louis	**7.20**	7.10	7.40	7.10
Zinc, New York	**7.55**	7.45	7.75	7.45
Lead, St. Louis	8.00	8.00	8.30	7.87½
Lead, New York	*8.25*	8.37½	8.60	8.20
Tin (Straits), New York	**63.75**	62.87½	64.00	51.30
Antimony (Asiatic), N. Y.	*18.00*	19.25	19.50	13.75

On export business there are frequent variations from the above prices. Also, in domestic business, there is at times a range of prices on various products, as shown in our market reports on other pages.

Pittsburgh

Pig Iron Drops $1.50—Steel Production Records Broken—Cold Strips Weaker

PITTSBURGH, April 6.—The local situation is less favorable. Heavy releases of tonnages of steel on first quarter contracts during the closing days of March appear to have exacted some toll from this month's business, as the common report of manufacturers is that the first week of this month has seen some falling off in business as compared with the last week of March. There is not much doubt that consumers have accumulated some reserve supplies of steel lately, and another reason for more conservative buying probably is to be found in the backward spring which is affecting the activities of secondary manufacturers.

A break of $1.50 a ton in the price of foundry iron, which has forced a downward revision of quotations on other grades, is another development of the first week of the new quarter. Although the merchant pig iron market no longer has direct influence upon the steel market, it exerts a sentimental effect, as there are still a great many consumers of steel who regard the course of the pig iron market as a dependable barometer of general business. The steel market likewise is deriving no support from the scrap market, which continues dull and weak.

Steel plant operations are still high, but chiefly, it seems, on the momentum of one of the biggest production months the steel industry ever has had. Steel Corporation steel-making units have been driven at an especially rapid gait, and nearly all of them have established new high production marks, notably the Homestead Works of the Carnegie Steel Co. where more than 20 records were made. Generally new business has not kept pace with shipments, and with backlogs very materially reduced, it would seem as though a considerable spurt of new buying would be necessary to prevent a recession in plant operations.

Steel prices generally are holding, the only important exception being in cold-rolled strips, for which a price of 3.75c. base, is mentioned more frequently than recently.

Pig Iron.—Consumers have again won out in the market here, which since a week ago has broken $1.50 a ton on foundry iron on a sale of 5000 tons to the Standard Sanitary Mfg. Co. and at least $1 a ton on the other grades on offers by producers. For almost five months merchant producers succeeded in maintaining $20.50, Valley furnace, for No. 2 foundry, $20 for basic and $21 for Bessemer, but during that time the market has not had the test of large demands and with most producers well sold up against first quarter production, competition for business has not been at all sharp for the small tonnages that have come out. While some consumers late last year covered for their requirements for the first half of this year, few if any of the producers had a second quarter backlog of business with the opening of the period, and when the Standard Sanitary Mfg. Co. inquiry appeared, the test of prices instantly developed. A producer with a furnace in western Pennsylvania, having a freight rate to Pittsburgh of 40c. per ton less than from Valley furnaces, named a delivered price that made a quotation of $19, Valley, for No. 2 grade necessary to get the business. Two Valley producers divided the order. The same buyer is still in the market for 5000 tons for its Pittsburgh and New Brighton plants. It also bought

southern Ohio iron at lower than the recent price, taking 8000 for its Louisville plant at $20, furnace, for No. 2 grade. Total takings for all plants for second quarter will be only 18,000 tons, or little more than half the last few quarterly purchases. The effect of the break has been to make buyers even more cautious than they have been, since the severity of the decline encourages the belief that even lower prices are ahead. Basic and malleable iron now are offered at $19 and Bessemer at $20, Valley furnace. The Youngstown Sheet & Tube Co. has started a furnace at Youngstown and the Claire furnace, Reliance Coke & Furnace Co., resumed production Saturday after a suspension of three months. These additions bring the total of active stacks to 93 out of 127 in this and nearby districts. W. P. Snyder & Co. make the March average prices of Bessemer and basic iron $21 and $20, respectively, the same prices as for the three preceding months.

We quote Valley furnace, the freight rate for delivery to the Cleveland or Pittsburgh district being $1.76 per gross ton:

Basic	$19.00
Bessemer	20.00
Gray forge	18.50
No. 2 foundry	19.00
No. 3 foundry	18.50
Malleable	$19.00 to 19.50
Low phosphorus, copper free	27.50 to 28.00

Ferroalloys.—On new business in ferromanganese, one domestic producer is quoting $95, Atlantic seaboard, while the latest quotation of another American maker is $90, and on Norwegian material the last known quotation was $88. The quotations mean little, because there is a dearth of new business, as it seems that all consumers took advantage of the period when the struggle for tonnage was sharpest, and covered against their requirements for the remainder of the year. Counting in the revisions made necessary by the guarantees against price declines, the material will cost them $88 in a majority of cases and $90 in a few. The latest quotation on British and German material is $110, Atlantic or Gulf seaboard, although some difficulty is being experienced in obtaining specifications against contracts at that figure, with other material available at less. Consumers are taking out spiegeleisen and 50 per cent ferrosilicon on contracts very steadily, but there is not much new business. Prices are given on page 1015.

Fluorspar.—New business is slow, and consumers are not pressing producers for shipments on contracts. Prices are being maintained by leading domestic producers, who are still quoting 85 and 5 per cent gravel spar at $18 per net ton at mines for ordinary lots, but are going about 50c. per ton lower to the large users. Even lower prices are reported, but only by producers representing a small part of the country's production. The latest advices from the seaboard indicate a price of around $17.50 per net ton, duty paid, for foreign spar.

Semi-Finished Steel.—The chief feature of the semi-finished steel market is its steadiness. There is not much activity either in open market transactions or in specifications on second quarter contracts. Non-integrated steel manufacturers seem to have fully specified against their first quarter contracts, and since these were in excess of actual requirements their present needs are neither large nor pressing. It is a situation that favors the buyers, because it is under these circumstances that concessions are sometimes made to secure early delivery specifications. Prices are given on page 1015.

Wire Products.—There is some irregularity in reports about business, but the more common one is that the past week has brought in fewer orders and specifications than the week before. Last week's business was swelled by some belated releases against first quarter contracts. Some slowing down was also to be expected because the weather over a considerable portion of the country has been unfavorable to a good movement into consumptive channels. It is probable that jobbers are better stocked now than for several months. Prices are steady. An advance seems impossible in view of the fact that buying is strictly for nearby requirements. On the other hand, manufacturers contend they cannot go below today's prices and make a fair profit. Prices are given on page 1013.

Rails and Track Supplies.—In keeping with the weakness in light rails is a tendency toward softer prices on small spikes. Both products go principally to the coal mines, and the fuel market is not encouraging to either full operation of mines or fresh development. Consequently demand for spikes is limited, and competition for passing orders is sharp. Standard section rails are moving steadily against 1926 contracts, and there is steady specifying against old orders for standard spikes and tie plates, but not much new business. Prices are given on page 1013.

Tubular Goods.—The recent rate of demand is well maintained. There is rather full engagement of mills making large diameter pipe, and the outlook is good for some time, as a number of pipe lines are being figured on and one to connect the new Texas Panhandle field with the refinery points should run to rather heavy tonnage. Casing, drill and drive pipe are moving steadily, and word about specifications for standard pipe is of a similar tenor. Mill prices are holding steadily, and while there is still some weakness in the secondary market, it is said to be less marked than in 1925. Seamless locomotive tubes and mechanical tubing are moving well, but the situation in welded boiler tubes could be better. Boiler tube prices are steadier. Discounts are given on page 1013.

Sheets.—Business generally is less active. Weather conditions have not favored consumption, and free specifications last week against first quarter contracts no doubt have given consumers a stock to draw on against immediate requirements. Prices appear to be holding at recent levels, but a comparatively light demand coupled with the absence of much backlog business creates a rather delicate situation. Buyers of the ordinary finishes see no danger of being unable to secure full supplies promptly and are acting accordingly. It

THE IRON AGE Composite Prices

Finished Steel

April 6, 1926, 2.439c. Per Lb.

One week ago	2.439c.
One month ago	2.431c.
One year ago	2.531c.
10-year pre-war average	1.689c.

Based on prices of steel bars, beams, tank plates, plain wire, open-hearth rails, black pipe and black sheets. These products constitute 88 per cent of the United States output of finished steel.

	High		Low	
1926	2.453c.,	Jan. 5;	2.424c.,	Feb. 9
1925	2.560c.,	Jan. 6;	2.396c.,	Aug. 18
1924	2.789c.,	Jan. 15;	2.460c.,	Oct. 14
1923	2.824c.,	April 24;	2.446c.,	Jan. 2

Pig Iron

April 6, 1926, $20.71 Per Gross Ton

One week ago	$21.38
One month ago	21.38
One year ago	21.29
10-year pre-war average	15.72

Based on average of basic and foundry irons, the basic being Valley quotation, the foundry an average of Chicago, Philadelphia and Birmingham.

	High		Low	
1926	$21.54,	Jan. 5;	$20.71,	April 6
1925	22.50,	Jan. 13;	18.96,	July 7
1924	22.88,	Feb. 26;	19.21,	Nov. 3
1923	30.86,	March 20;	20.77,	Nov. 20

Mill Prices of Finished Iron and Steel Products

Iron and Steel Bars

Soft Steel

	Base Per Lb.
F.o.b. Pittsburgh mills	2.00c. to 2.10c.
F.o.b. Chicago	2.10c.
Del'd Philadelphia	2.32c.
Del'd New York	2.34c. to 2.44c.
Del'd Cleveland	2.19c.
F.o.b. Birmingham	2.15c. to 2.25c.
C.i.f. Pacific ports	2.35c.
F.o.b. San Francisco mills	2.35c. to 2.40c.

Billet Steel Reinforcing

F.o.b. Pittsburgh mills	2.00c. to 2.10c.

Rail Steel

F.o.b. mill	1.80c. to 1.90c.
F.o.b. Chicago	2.00c.

Iron

Common iron, f.o.b. Chicago	2.00c.
Refined iron, f.o.b. P'gh mills	3.00c.
Common iron, del'd Philadelphia	2.22c.
Common iron, del'd New York	2.24c.

Tank Plates

	Base Per Lb.
F.o.b. Pittsburgh mill	1.90c.
F.o.b. Chicago	2.10c.
F.o.b. Birmingham	2.05c. to 2.15c.
Del'd Cleveland	2.09c.
Del'd Philadelphia	2.22c.
Del'd New York	2.24c.
C.i.f. Pacific ports	2.25c. to 2.30c.

Structural Shapes

	Base Per Lb.
F.o.b. Pittsburgh mill	1.90c. to 2.00c.
F.o.b. Chicago	2.10c.
F.o.b. Birmingham	2.05c. to 2.15c.
Del'd Cleveland	2.09c. to 2.19c.
Del'd Philadelphia	2.12c. to 2.22c.
Del'd New York	2.24c. to 2.34c.
C.i.f. Pacific ports	2.35c.

Hot-Rolled Flats (Hoops, Bands and Strips)

	Base Per Lb.
All gages, narrower than 6 in., P'gh	2.50c.
All gages, 6 in. and wider, P'gh	2.30c.
All gages, 6 in. and narrower, Chicago	2.60c.
All gages, wider than 6 in., Chicago	2.50c.

Cold-Finished Steel

	Base Per Lb.
Bars, f.o.b. Pittsburgh mills	2.50c.
Bars, f.o.b. Chicago	2.50c.
Bars, Cleveland	2.55c.
Shafting, ground, f.o.b. mill	*2.70c. to 3.00c.
Strips, f.o.b. Pittsburgh mills	3.90c.
Strips, f.o.b. Cleveland mills	3.90c.
Strips, delivered Chicago	4.20c.
Strips, f.o.b. Worcester mills	4.05c.

*According to size.

Wire Products

(To jobbers in car lots f.o.b. Pittsburgh and Cleveland)

	Base Per Keg
Wire nails	$2.65
Galv'd nails, 1-in. and longer	4.65
Galv'd nails, shorter than 1 in.	4.90
Galvanized staples	3.35
Polished staples	3.10
Cement coated nails	2.65

	Base Per 100 Lb.
Bright plain wire, No. 9 gage	$2.50
Annealed fence wire	2.65
Spring wire	3.50
Galv'd wire, No. 9	3.10
Barbed wire, galv'd	3.35
Barbed wire, painted	3.10

Chicago district mill and delivered Chicago prices are $1 per ton above the foregong. Birmingham mill prices $3 a ton higher; Worcester, Mass., mill $3 a ton higher on production of that plant; Duluth, Minn., mill $2 a ton higher; Anderson, Ind., $1 higher.

Woven Wire Fence

	Base to Retailers Per Net Ton
F.o.b. Pittsburgh	$65.00
F.o.b. Cleveland	65.00
F.o.b. Anderson, Ind.	66.00
F.o.b. Chicago district mills	67.00
F.o.b. Duluth	68.00
F.o.b. Birmingham	68.00

Sheets

Blue Annealed

	Base Per Lb.
Nos. 9 and 10, f.o.b. Pittsburgh	2.50c.
Nos. 9 and 10, f.o.b. Ch'go dist. mills	2.60c.
Nos. 9 and 10, del'd Phila'phia	2.82c.

Box Annealed, One Pass Cold Rolled

No. 28, f.o.b. Pittsburgh	3.25c. to 3.35c.
No. 28, f.o.b. Ch'go dist. mill	3.45c.
No. 28, del'd Phila'phia	3.67c.

Galvanized

No. 28, f.o.b. Pittsburgh	4.50c. to 4.60c.
No. 28, f.o.b. Chicago dist. mill	4.70c.
No. 28, del'd Philadelphia	4.92c.

Tin Mill Black Plate

No. 28, f.o.b. Pittsburgh	3.25c. to 3.35c.
No. 28, f.o.b. Chicago dist. mill	3.45c.

Automobile Body Sheets

No. 22, f.o.b. Pittsburgh	4.40c.

Long Ternes

No. 28, 8-lb. coating, f.o.b. mill	4.85c.

Tin Plate

	Per Base Box
Standard cokes, f.o.b. P'gh district mills	$5.50
Standard cokes, f.o.b. Gary and Elwood, Ind.	5.60

Terne Plate

(*F.o.b. Morgantown or Pittsburgh*)
(Per package, 20 x 28 in.)

8-lb. coating, 100 lb. base	$11.40	20-lb. coating I.C.	$16.20
8-lb. coating I.C.	11.70	25-lb. coating I.C.	17.90
15-lb. coating I.C.	14.85	30-lb. coating I.C.	19.45
		40-lb. coating I.C.	21.65

Alloy Steel Bars

(F.o.b. Pittsburgh or Chicago)

S. A. E. Series Numbers		Base Per 100 Lb.
2100*	(½% Nickel, 0.10% to 0.20% Carbon)	$3.20 to $3.25
2300	(3½% Nickel)	4.50 to 4.60
2500	(5% Nickel)	5.70 to 5.80
3100	(Nickel Chromium)	3.50 to 3.60
3200	(Nickel Chromium)	5.00 to 5.25
3300	(Nickel Chromium)	7.00 to 7.25
3400	(Nickel Chromium)	6.25 to 6.50
5100	(Chromium Steel)	3.50
5200*	(Chromium Steel)	7.00 to 7.50
6100	(Chrom. Vanadium bars)	4.20 to 4.30
6100	(Chrom. Vanad. spring steel)	3.80
9250	(Silicon Manganese spring steel)	3.20 to 3.25
	Carbon Vanadium (0.45% to 0.55% Carbon, 0.15% Vanad.)	4.10 to 4.20
	Nickel Chrome Vanadium (0.60 Nickel, 0.50 Chrom., 0.15 Vanad.)	4.45 to 4.55
	Chromium Molybdenum bars (0.80—1.10 Chrom., 0.25—0.40 Molyb.)	4.25 to 4.35
	Chromium Molybdenum bars (0.50—0.70 Chrom., 0.15—0.25 Molyb.)	3.40 to 3.50
	Chromium Molybdenum spring steel (1 — 1.25 Chrom., 0.30 — 0.50 Molybdenum)	4.50 to 4.75

Above prices are for hot-rolled steel bars, forging quality. The ordinary differential for cold-drawn bars is 1c. per lb. higher. For billets 4 x 4 to 10 x 10 in. the price for a gross ton is the net price for bars of the same analysis. For billets under 4 x 4 in. down to and including 2½-in. squares, the price is $5 a gross ton above the 4 x 4 billet price.

*Not S. A. E. specifications, but numbered by manufacturers to conform to S. A. E. system.

Rails

	Per Gross Ton
Standard, f.o.b. mill	$43.00
Light (from billets), f.o.b. mill	$34.00 to 35.00
Light (from rail steel), f.o.b. mill	33.00 to 34.00
Light (from billets), f.o.b. Ch'go mill	36.00 to 38.00

Track Equipment

(F.o.b. Mill)

	Base Per 100 Lb.
Spikes, ⅝ in. and larger	$2.80 to $3.10
Spikes, ½ in. and smaller	2.90 to 3.50
Spikes, boat and barge	3.25
Track bolts, all sizes	4.00 to 4.50
Tie plates, steel	2.25 to 2.35
Angle bars	2.75

Welded Pipe

Base Discounts, f.o.b. Pittsburgh District and Lorain, Ohio, Mills

Butt Weld

Steel Inches	Black	Galv.	Iron Inches	Black	Galv.
⅛	45	19½	¼ to ⅜	+11	+39
¼ to ⅜	51	25½	½	22	2
½	56	42½	¾	28	11
¾	60	48½	1 to 1½	30	12
1 to 3	62	50½			

Lap Weld

2	55	43½	2	28	7
2½ to 6	59	47½	2½	26	11
7 and 8	56	43½	3 to 6	28	12
9 and 10	54	41½	7 to 12	26	11
11 and 12	53	40½			

Butt Weld, extra strong, plain ends

⅛	41	24½	¼ to ⅜	+19	+54
¼ to ⅜	47	30½	½	21	7
½	53	42½	¾	28	12
¾	58	47½	1 to 1½	30	14
1 to 1½	60	49½			
2 to 3	61	50½			

Lap Weld, extra strong, plain ends

2	53	42½	2	23	9
2½ to 4	57	46½	2½ to 4	29	15
4½ to 6	56	45½	4½ to 6	28	14
7 to 8	52	39½	7 to 8	21	7
9 and 10	45	32½	9 to 12	16	2
11 and 12	44	31½			

To the large jobbing trade the above discounts on steel pipe are increased on black by one point, with supplementary discount of 5%, and on galvanized by 1½ points, with supplementary discount of 5%. On iron pipe, both black and galvanized, the above discounts are increased to large jobbers by one point with supplementary discounts of 5 and 2½%.

Note.—Chicago district mills have a base two points less than the above discounts. Chicago delivered base is 2½ points less. Freight is figured from Pittsburgh, Lorain, Ohio, and Chicago district mills, the billing being from the point producing the lowest price to destination.

Boiler Tubes

Base Discounts, f.o.b. Pittsburgh

Lap Welded Steel		Charcoal Iron	
2 to 2¼ in.	27	1½ in.	+18
2½ to 2¾ in.	37	1¾ to 1⅞ in.	+ 8
3 in.	40	2 to 2¼ in.	— 2
3¼ to 3¾ in.	42½	2½ to 3 in.	— 7
4 to 13 in.	46	3¼ to 4½ in.	— 9

Beyond the above discounts, 5 to 7 fives extra are given on lap welded steel tubes and 2 tens to 2 tens and 1 five on charcoal iron tubes.

Standard Commercial Seamless Boiler Tubes

Cold Drawn

1 in.	60	3 in.	45
1¼ to 1½ in.	52	3½ to 3½ in.	47
1¾ in.	36	4 in.	50
2 to 2¼ in.	31	4½, 5 and 6 in.	45
2½ to 2¾ in.	39		

Hot Rolled

2 and 2¼ in.	34	3¼ and 3½ in.	50
2½ and 2¾ in.	42	4 in.	53
3 in.	48	4½, 5 and 6 in.	48

Less carloads, 4 points less. Add $8 per net ton for more than four gages heavier than standard. No extra for lengths up to and including 24 ft. Sizes smaller than 1 in. and lighter than standard gage to be held at mechanical tube list and discount. Intermediate sizes and gages not listed take price of next larger outside diameter and heavier gage.

Seamless Mechanical Tubing

	Per Cent Off List
Carbon, 0.10% to 0.30%, base	55
Carbon, 0.30% to 0.40%, base	50

Plus differentials for lengths over 18 ft. and for commercially exact lengths. Warehouse discounts on small lots are less than the above.

is not helpful to the general market that some of the automobile makers are curtailing production, because that industry takes such a large percentage of the total sheet production. Prices are given on page 1013.

Tin Plate.—The American Sheet & Tin Plate Co. on April 5, started its Pittsburgh works, New Kensington, Pa., an eight-mill unit, which had been idle for almost two years. This addition gives the company a total of 228 out of 264 mills in production, and this is practically full physical capacity, as the six mills at Crescent works, Cleveland, and the 10 at Labelle works, Wheeling, in recent years have been carried as emergency capacity. The late start in getting packing crops into the ground has relieved fears that there might be a shortage of tin plate during the packing season.

Cold-Finished Steel Bars and Shafting.—Business is better described as steady than as active, and there is not much fluctuation in volume from week to week. Some of the automobile builders produced cars last month in excess of shipments and are on reduced schedules for this month; parts makers serving these companies are taking less steel than recently, but in other directions demand is holding well. Prices are steady at 2.50c. per lb., base Pittsburgh, for ordinary tonnages.

Hot-Rolled Flats.—Business in hoops, bands and strips is good, but the phase of the situation most commonly commented on is the absence of deviations from quotations. Prices are given on page 1013.

Cold-Rolled Strips.—One or two producers are still making a lower price than 3.90c., but the concession, presumably made on some attractive orders, does not seem to be bringing down the prices of other producers. Business in the past week has been heavier with some local makers, but poorer with others. Even those who have fared best do not claim accretions to backlogs.

Steel and Iron Bars.—Demands for steel bars are still fairly numerous, but total bookings in the past week of important consumers have been somewhat below the average of the last two weeks of March. Most mills are making such prompt deliveries against new business that buyers do not feel the necessity of ordering very far in advance of actual needs. The market is still quotable at 2c. to 2.10c., base Pittsburgh, but the higher price is exceptional even for small tonnages. Iron bar prices are holding at recent levels, with the demand steady rather than active.

Structural Material.—Mills in this district are making a very firm stand at 1.90c., base Pittsburgh, for large structural shapes. In fabricated steel prospective business is still heavier than actual bookings. Plain material prices are given on page 1013.

Plates.—The market here is still firm at 1.90c., base Pittsburgh, and while demands are not of a size to tax capacity, producers are more disposed to get a price that yields a profit than they are to take business merely for the sake of keeping mills running. The local situation has been materially helped by the firm stand of Eastern mills.

Bolts, Nuts and Rivets.—Business in bolts and nuts was very satisfactory last month for local makers and the general report is that it is holding up well this month. Business in rivets also is good, but there continues to be considerable irregularity in prices, notably in large rivets. No important deviations from quotations on bolt and nuts are noted. Prices and discounts are given on page 1015.

Coal and Coke.—The spot coke market is very steady at the prices of the past few weeks. Spot demands are light, because so many consumers are covered by contracts, but Connellsville district producers seem to have scaled production to the basis of contract obligations and are not offering much coke for prompt delivery. The coal market is still in the doldrums, and with supplies very much in excess of demand, prices are merely buyers' valuations. Mines in this district which have been operating on the so-called Jacksonville scale of wages have generally suspended since a week ago. The passing of this production is not missed, because of the abundant supply of non-union coal. The common explanation given for the suspension of the union mines is that they cannot be operated profitably in competition with non-union mines, wage scales of which are about one-third less than those of the union. Prices are given on page 1015.

Old Material.—The market here is gradually moving toward lower levels, as there is almost no consumer interest and dealers with short orders to cover are completing them. All that gives the market a measure of support is the fact that there are still a few short orders and producers of scrap are not offering it very freely at present prices. It is a hard market for dealers, who would have to go low to interest consumers and then probably have to pay high to secure supplies from originators. Prices above $17 for heavy melting steel or more than $12.50 for turnings represent what dealers are paying against short orders; fresh sales to consumers would not be possible above those prices. The Baltimore & Ohio Railroad is taking bids until noon April 12, on 23,335 gross tons of scrap, of which 5000 tons is miscellaneous rails.

We quote for delivery to consumer's mill in the Pittsburgh and other districts taking the Pittsburgh freight rate as follows:

	Per Gross Ton	
Heavy melting steel		$17.00
No. 1 cast, cupola size	$16.50 to	17.00
Rails for rolling, Newark and Cambridge, Ohio; Cumberland, Md.; Huntington, W. Va., and Franklin, Pa.	18.50 to	19.00
Compressed sheet steel	15.50 to	16.00
Bundled sheets, sides and ends	14.50 to	15.00
Railroad knuckles and couplers	19.00 to	19.50
Railroad coil and leaf springs	19.00 to	19.50
Low phosphorus blooms and billet ends	21.50 to	22.00
Low phosphorus plates and other material	19.50 to	20.00
Low phosphorus punchings	19.50 to	20.00
Steel car axles	22.50 to	23.00
Cast iron wheels	17.50 to	18.00
Rolled steel wheels	19.00 to	19.50
Machine shop turnings	12.00 to	12.50
Short shoveling turnings	12.50 to	13.00
Sheet bar crops	19.00 to	19.50
Heavy steel axle turnings	15.50 to	16.00
Short mixed borings and turnings	12.50 to	13.00
Heavy breakable cast	15.00 to	15.50
Cast iron borings	12.50 to	13.00
No. 1 railroad wrought	12.50 to	13.00
No. 2 railroad wrought	17.00 to	17.50
Malleable scrap	17.50 to	18.00

Warehouse Prices, F.o.b. Pittsburgh

	Base per Lb.
Tank plates	3.00c.
Structural shapes	3.00c.
Soft steel bars and small shapes	2.90c.
Reinforcing steel bars	2.90c.
Cold-finished shafting and screw stock—	
Rounds and hexagons	3.60c.
Squares and flats	4.10c.
Bands	3.60c.
Spikes, large	3.30c.
Small	3.80c. to 5.25c.
Boat	3.80c.
Bolts, track	4.90c.
Wire, black soft annealed, base per 100 lb.	$3.00
Wire, galvanized soft, base per 100 lb.	3.00
Common wire nails, per keg	3.00
Cement coated nails	3.05

Foundrymen's European Exchange Papers Arranged

Exchange papers for the 1926 meetings of the British, French and Belgian foundrymen's associations have been arranged for by the president of the American Foundrymen's Association, A. B. Root, Jr.

Jesse L. Jones, of the Westinghouse Electric & Mfg. Co., East Pittsburgh, is preparing the paper for the Association Technique de Fonderie de France, on the subject "The Effect of the Addition of Iron and Steel Scrap to Blast Furnaces on the Quality of Pig Iron." For the Institute of British foundrymen a paper entitled "Quantity Production with Quality of Product" is being prepared by A. H. Lenz, Saginaw Products Co., Saginaw, Mich. For the Belgian foundrymen's meeting, O. W. Potter, University of Minnesota, has been selected as the author of a paper entitled "Heat Treatment of Cast Iron."

Semi-Finished Steel, Raw Materials, Bolts and Rivets

Mill Prices of Semi-Finished Steel

F.o.b. Pittsburgh or Youngstown

Billets and Blooms

	Per Gross Ton
Rolling, 4-in. and over	$35.00
Rolling, 2-in. and smaller	36.00
Forging, ordinary	40.00
Forging, guaranteed	45.00

Sheet Bars

	Per Gross Ton
Open-hearth or Bessemer	$36.00

Slabs

	Per Gross Ton
8 in. x 2 in. and larger	$35.00
6 in. x 2 in. and smaller	36.00

Skelp

	Per Lb.
Grooved	1.90c.
Sheared	1.90c.
Universal	1.90c.

Wire Rods

	Per Gross Ton
*Common soft, base, No. 5 to ⅜-in.	$45.00
Common soft, coarser than ⅜ in.	$2.50 over base
Screw stock	$5.00 per ton over base
Carbon 0.20% to 0.40%	3.00 per ton over base
Carbon 0.41% to 0.55%	5.00 per ton over base
Carbon 0.56% to 0.75%	7.50 per ton over base
Carbon over 0.75%	10.00 per ton over base
Acid	15.00 per ton over base

*Chicago mill base is $46. Cleveland mill base, $45.

Prices of Raw Materials

Ores

Lake Superior Ores, Delivered Lower Lake Ports

	Per Gross Ton
Old range Bessemer, 51.50% iron	$4.55
Old range non-Bessemer, 51.50% iron	4.40
Mesabi Bessemer, 51.50% iron	4.40
Mesabi non-Bessemer, 51.50% iron	4.25
High phosphorus, 51.50% iron	4.15

Foreign Ore, c.i.f. Philadelphia or Baltimore

	Per Unit
Iron ore, low phos., copper free, 55 to 58% iron in dry Spanish or Algerian	9.50c. to 10c.
Iron ore, Swedish, average 66% iron	9.50c.
Manganese ore, washed, 51% manganese, from the Caucasus	45c.
Manganese ore, Brazilian or Indian, nominal	42c. to 44c.
Tungsten ore, high grade, per unit, in 60% concentrates	$12.00 to $13.00
	Per Ton
Chrome ore, Indian basic, 48% Cr_2O_3, crude, c.i.f. Atlantic seaboard	$22.00 to $23.00
	Per Lb.
Molybdenum ore, 85% concentrates of MoS_2, delivered	55c. to 60c.

Coke

	Per Net Ton	
Furnace, f.o.b. Connellsville prompt	$3.00 to	$3.25
Foundry, f.o.b. Connellsville prompt	4.25 to	4.75
Foundry, by-product, Ch'go ovens		10.50
Foundry, by-product, New England, del'd		12.50
Foundry, by-product, Newark or Jersey City, delivered	10.50 to	11.52
Foundry, Birmingham		5.50
Foundry, by-product, St. Louis or Granite City		10.00

Coal

	Per Net Ton	
Mine run steam coal, f.o.b. W. Pa. mines	$1.40 to	$1.90
Mine run coking coal, f.o.b. W. Pa. mines	1.65 to	1.90
Mine run gas coal, f.o.b. Pa. mines	1.90 to	2.10
Steam slack, f.o.b. W. Pa. mines	1.30 to	1.40
Gas slack, f.o.b. W. Pa. mines	1.40 to	1.50

Ferromanganese

	Per Gross Ton
Domestic, 80%, furnace or seab'd	$88.00 to $95.00
Foreign, 80%, Atlantic or Gulf port, duty paid	$88.00 to 110.00

Spiegeleisen

	Per Gross Ton Furnace
Domestic, 19 to 21%	$32.00 to $34.00
Domestic, 16 to 19%	31.00 to 33.00

Electric Ferrosilicon

	Per Gross Ton Delivered
50%	$85.00
75%	145.00

	Per Gross Ton Furnace		Per Gross Ton Furnace
10%	$42.00	12%	$42.00
11%	42.00	14 to 16%	$45 to 46.00

Bessemer Ferrosilicon

F.o.b. Jackson County, Ohio, Furnace

	Per Gross Ton		Per Gross Ton
10%	$36.00	12%	$40.00
11%	38.00		

Silvery Iron

F.o.b. Jackson County, Ohio, Furnace

	Per Gross Ton		Per Gross Ton
6%	$28.50	10%	$34.00
7%	29.50	11%	36.00
8%	30.50	12%	38.00
9%	32.00		

Other Ferroalloys

Ferrotungsten, per lb. contained metal, del'd	$1.20
Ferrochromium, 4% carbon and up, 60 to 70% Cr., per lb. contained Cr. delivered	11.50c.
Ferrovanadium, per lb. contained vanadium, f.o.b. furnace	$3.25 to $4.00
Ferrocarbontitanium, 15 to 18%, per net ton, f.o.b. furnace, in carloads	$200.00
Ferrophosphorus, electric or blast furnace material, in carloads, 18%, Rockdale, Tenn., base, per net ton	$91.00
Ferrophosphorus, electric, 24%, f.o.b. Anniston, Ala., per net ton	$122.50

Fluxes and Refractories

Fluorspar

	Per Net Ton
Domestic, 85% and over calcium fluoride, not over 5% silica, gravel, f.o.b. Illinois and Kentucky mines	$17.00 to $18.00
No. 2 lump, Illinois and Kentucky mines	$20.00
Foreign, 85% calcium fluoride, not over 5% silica, c.i.f. Atlantic port, duty paid,	$17.41 to $18.00
Domestic, No. 1 ground bulk, 95 to 98% calcium fluoride, not over 2½% silica, f.o.b. Illinois and Kentucky mines	$32.50

Fire Clay

	Per 1000 f.o.b. Works	
	High Duty	Moderate Duty
Pennsylvania	$43.00 to $46.00	$40.00 to $43.00
Maryland	48.00 to 50.00	43.00 to 45.00
Ohio	43.00 to 46.00	40.00 to 43.00
Kentucky	43.00 to 45.00	40.00 to 43.00
Illinois	43.00 to 45.00	40.00 to 43.00
Missouri	40.00 to 43.00	35.00 to 38.00
Ground fire clay, per ton	6.50 to	7.50

Silica Brick

	Per 1000 f.o.b. Works
Pennsylvania	$40.00
Chicago	49.00
Birmingham	54.00
Silica clay, per ton	$8.00 to 9.00

Magnesite Brick

	Per Net Ton
Standard size, f.o.b. Baltimore and Chester, Pa.	$65.00
Grain magnesite, f.o.b. Baltimore and Chester, Pa.	40.00

Chrome Brick

	Per Net Ton
Standard size	$48.00

Mill Prices of Bolts, Nuts, Rivets and Set Screws

Bolts and Nuts

(Less-than-Carload Lots)

(F.o.b. Pittsburgh, Cleveland, Birmingham and Chicago)

	Per Cent Off List
Machine bolts, small, rolled threads	60 and 10
Machine bolts, all sizes, cut threads	50, 10 and 10
Carriage bolts, smaller and shorter, rolled threads	50, 10 and 10
Carriage bolts, cut threads, all sizes	50 and 10
Eagle carriage bolts	65 and 10
Lag bolts	60, 10 and 10
Plow bolts, Nos. 3 and 7 heads	50 and 10
(Extra of 20% for other style heads)	
Machine bolts, c.p.c. and t. nuts, ⅜ x 4 in.,	45, 10 and 5
Larger and longer sizes	45, 10 and 5
Bolt ends with hot-pressed nuts	50, 10 and 10
Bolt ends with cold-pressed nuts	45, 10 and 5
Hot-pressed nuts, blank and tapped, square,	4.00c. per lb. off list
Hot-pressed nuts, blank or tapped, hexagons,	4.40c. per lb. off list
C.p.c. and t. square or hex. nuts, blank or tapped	4.10c. per lb. off list
Washers*	6.50c. to 6.25c. per lb. off list

*F.o.b. Chicago and Pittsburgh.

The discount on machine, carriage and lag bolts is 5 per cent more than above for car lots. On hot-pressed and cold-punched nuts the discount is 25c. more per 100 lb. than quoted above for car lots.

Bolts and Nuts

(Quoted with actual freight allowed up to but not exceeding 50c. per 100 lb.)

	Per Cent Off List
Semi-finished hexagon nuts:	
⅞ in. and smaller, U. S. S.	80, 10 and 5
¾ in. and larger, U. S. S.	75, 10 and 5
Small sizes, S. A. E.	80, 10, 10 and 5
S. A. E., ⅝ in. and larger	75, 10, 10 and 5
Stove bolts in packages	80, 10 and 5
Stove bolts in bulk	80, 10, 5 and 2½
Tire bolts	60 and 5

Semi-Finished Castellated and Slotted Nuts

(Actual freight allowed up to but not exceeding 50c. per 100 lb.)

(To jobbers and consumers in large quantities)

	Per 100 Net S.A.E.	U.S.S.		Per 100 Net S.A.E.	U.S.S.
¼-in.	$0.44	$0.44	⅝-in.	$2.35	$2.40
5/16-in.	0.515	0.515	⅞-in.	3.60	3.60
3/8-in.	0.62	0.66	1-in.	5.65	5.80
7/16-in.	0.79	0.90	1¼-in.	8.90	8.90
½-in.	1.01	1.05	1⅛-in.	12.60	13.10
9/16-in.	1.38	1.42	1⅜-in.	18.35	18.35
⅝-in.	1.70	1.73	1½-in.	21.00	21.00

Larger sizes.—Prices on application.

Large Rivets

	Base Per 100 Lb.
F.o.b. Pittsburgh	$2.50 to $2.60
F.o.b. Cleveland	2.70
F.o.b. Chicago	2.75

Small Rivets

	Per Cent Off List
F.o.b. Pittsburgh	70 and 10
F.o.b. Cleveland	70 and 10
F.o.b. Chicago	70 and 10 to 70 and 5

Cap and Set Screws

(Freight allowed up to but not exceeding 50c. per 100 lb.)

	Per Cent Off List
Milled cap screws	80 and 10
Milled standard set screws, case hardened,	80 and 5
Milled headless set screws, cut thread	80
Upset hex. head cap screws, U. S. S. thread,	80, 10 and 10
Upset hex. cap screws, S. A. E. thread,	80, 10 and 10
Upset set screws	80, 10 and 5
Milled studs	70 and 5

Chicago

March Steel Specifications Gain 20 Per Cent—Pig Iron Declines $1

CHICAGO, April 6.—The leading mill and the foremost independent continue to operate close to capacity, and although the present record-breaking rate of production is not expected to be maintained, no drastic curtailment is in sight and second quarter prospects are regarded as brighter than a year ago at this time. Consumers continue to exercise caution in buying and, with stocks at a low point, are pressing mills for scheduled deliveries. Producers claim that the preponderance of their commitments are liquid and that shipments are going directly into consumption.

In general, specifications in March were 20 per cent ahead of those in February, and a similar gain was made in sales. New business for the week is approximately equal to shipments, while specifications are well ahead of shipments and show a decided improvement over those of the previous week. Demand for structural shapes is gradually expanding, and March specifications were about 40 per cent above the preceding month. The rate which obtained last month has been more than maintained during the first week in April.

Prices on finished steel are firm in the immediate Chicago territory, and competition is reported less severe in outlying districts. Western mills are now quoting steel tie plates at $45 to $47 per net ton, the higher price being obtained from railroads operating east of Chicago. Railroads are actively engaged in spring improvement programs and are specifying heavily for track materials. Railroad car orders are light and specifications to mills from the carbuilders are smaller. Freight cars now on inquiry throughout the country do not total more than 4000. There are also about 265 passenger and baggage cars pending.

The Chicago scrap market is weak, and although recent storms have delayed yard work and shipments, there appears to be more ready material than users' requirements will absorb.

Pig Iron.—Northern iron has declined $1 a ton to $22, base local furnace. Second quarter contracting has not advanced beyond 60 to 70 per cent of the expectations of makers, who are carrying forward into April a fairly large tonnage from first quarter contracts. Shipments are well maintained, although there are indications that the general run of foundries are beginning to curtail operations. Stocks at furnaces are not more than one-third of what they were at this time last year, and if shipments continue at the present rate, there is little prospect for building up stocks. Production in this district has been reduced to the extent that a steel works furnace at Indiana Harbor is not at the moment supplying pig iron to the merchant trade.

Quotations on Northern foundry, high phosphorus and malleable iron are f.o.b. local furnace, and do not include an average switching charge of 61c. per ton. Other prices are for iron delivered at consumers' yards.

Northern No. 2 foundry, sil. 1.75 to 2.25		$22.00
Northern No. 1 foundry, sil. 2.25 to 2.75		22.50
Malleable, not over 2.25 sil.		22.00
High phosphorus		22.00
Lake Superior charcoal, averaging sil. 1.50, delivered at Chicago		29.04
Southern No. 2 (all rail)	$27.01 to	28.01
Southern No. 2 (barge and rail)	26.18 to	27.18
Low phos., sil. 1 to 2 per cent, copper free	31.20 to	31.70
Silvery, sil. 8 per cent		25.29
Ferrosilicon, 14 to 16 per cent		48.79

Coke.—Chicago district ovens continue to operate full, and by-product foundry coke is firm at $10.50, ovens, or $11, delivered in the Chicago switching district.

Ferroalloys.—Ferromanganese is still quotable at $88 to $90, seaboard. Users, as a general rule, are well covered by contracts, and spot buying is quiet. Spiegeleisen is dull in the immediate Chicago district, and the only sale reported called for Jackson County material for delivery into western Michigan. The tonnage was small and brought $35, furnace, or $40.64, delivered, for 16 to 19 per cent material. This is equivalent to $32.88, base Hazzard, Pa.

We quote 80 per cent ferromanganese, $95.56 to $97.56, delivered Chicago; 50 per cent ferrosilicon, $85, delivered, spiegeleisen, 18 to 22 per cent, $41.56, delivered Chicago.

Sheets.—A slight improvement in forward contracting is noticeable, and mill schedules have advanced somewhat on black and galvanized sheets. The increased demand for black sheets is coming largely from stove makers. Chicago district mill prices are firm.

Chicago delivered prices from mill are 3.50c. for No. 28 black, 2.65c. for No. 10 blue annealed and 4.75c. for No. 28 galvanized. Delivered prices at other Western points are equal to the freight from Gary plus the mill prices, which are 5c. per 100 lb. lower than the Chicago delivered prices.

Plates.—The outstanding plate inquiry before Western mills is 25,000 tons for a tank farm at a new refinery to be built in northern Indiana. Out of about 28,800 freight cars purchased during the first quarter, 17,000 have been placed by Western railroads with car builders in the Chicago territory. Following two weeks of heavy specifications by car makers, the past week has been quiet. Car inquiries are at the low point of the year. The Burlington is carrying out an extensive repair program at its Aurora, Ill., shops, and is now starting work on another lot of 500 cars. The Chicago & Eastern Illinois is also rebuilding a large number of old cars. The demand for plates is insistent, and deliveries are gradually being extended. Mills do not appear to be able to do better than 10 weeks on universal mill plates, and deliveries on sheared plates range from six to eight weeks. A prominent maker of pipe in this district is diverting some tonnage to the plate market and is successfully competing on plates required for light built-up structural members. The Canadian Pacific is inquiring for 6500 tons of plates for barge construction. The 10,000 tons of plates, shapes and bars for the Northern Pacific cars has not as yet been placed.

The mill quotation on plates is 2.10c. per lb., base, Chicago.

Structural Material.—Specifications for plain material during March were 40 per cent greater than for February, and the average maintained throughout that month is being carried through the present week. Individually structural awards are not heavy, but they bulk fairly large in the aggregate. Shops in this district are booked on the average for two months ahead.

The mill quotation on plain material is 2.10c., per lb., base, Chicago.

Billets.—Demand is well maintained, and local makers have booked 8000 tons within the week. Prices are steady at $35 per gross ton for rolling billets, 4-in. and larger.

Cold-Finished Bars.—Second quarter contracts thus far closed by mills cover about 85 per cent of the tonnage placed during the first three months of the year. Specifications from the automobile trade are tending to slow up, but business from farm implement makers continues at an unchanged rate. Prices are firm at 2.50c. per lb., Chicago.

Bars.—Demand for soft steel bars is gradually expanding. Mills this week received 50 per cent more tonnage in the form of specifications than during the previous seven days. Mills are carefully watching the tendency of users to speculate in this commodity, and one maker refused an order for 5000 tons on the ground that the customer still had 2000 tons unspecified against an old contract. Stocks in the hands of users are said to be low, and mills are being pressed for early deliveries. The Chicago mill price is firm at 2.10c. Railroads are gradually making known their bar iron requirements, and this week placed second quarter contracts with one mill covering 4000 tons. The manufacturing trade continues to buy small tonnages for immediate delivery. Iron bars are firm at 2c., Chicago. Notwithstanding the fact that the weather has delayed the movement of fence posts and that the bulk of the output of rail steel bar mills is being con-

verted into that product, there has been no slackening of operations. Until last week mills were behind on fence post deliveries. Backlogs average about six weeks. Specifications from bed manufacturers are about normal for this time of the year. Rail steel bars are firm at 2c., Chicago.

Mill prices per lb. are: Mild steel bars, 2.10c., base, Chicago; common bar iron, 2c., base, Chicago; rail steel bars, 2c., base, Chicago.

Wire Products.—The severe storm of the past week interfered seriously with the distribution of wire products throughout the Central West, Northwest and the mountain regions. The result has been a lull in the jobbing trade, but mills believe that the potential demand is there and that it only awaits weather conditions which are favorable to transportation in the country districts. Conservatism on the part of buyers is still making itself felt in the manufacturing trade. Second quarter contracting is not running as heavy as for the first three months of the year. All told, shipments during March were the heaviest in a year. Mill operations continue at 65 to 70 per cent. Prices, which are steady, are shown on page 1013.

Rails and Track Supplies.—Specifications against contracts are unusually heavy, and pressure for early deliveries is the greatest in the experience of local mills. Steel tie plates are being quoted at 2.25c., mill, in the immediate Chicago territory and to the West, but tonnages placed east of Chicago are bringing 2.35c., mill. New business both in standard section rails and light rails is in small volume, but miscellaneous orders for track accessories bulk fairly large in the aggregate. Bookings for the week total 2500 tons of angle bars, 2000 tons of tie plates, 10,000 kegs of spikes and 5000 kegs of bolts.

Standard Bessemer and open-hearth rails, $43; light rails, rolled from billets, $36 to $38 per gross ton, f.o.b. maker's mill.

Standard railroad spikes, 2.90c. to 3c. per lb. mill track bolts with square nuts, 3.90c. to 4c. mill.; steel tie plates, 2.25c. to 2.35c., mill; angle bars, 2.75c., mill.

Bolts, Nuts and Rivets.—Prices, as a rule, are firm, although specifications are not quite so heavy because of a seasonal lull in the farm implement trade. Specifications from the automobile trade are being received at an unchanged rate.

Cast Iron Pipe.—Both inquiry and buying are more active. Chicago delivered prices are unchanged. Private interests, particularly gas companies, remain actively in the market. James B. Clow & Sons has taken 420 tons of 8-in., 390 tons of 6-in. and 55 tons of 4-in. for Berea, Ohio, at a base price of $41.48. Akron, Ohio, placed 1000 tons of 4 to 16-in. with the United States Cast Iron Pipe & Foundry Co. and 90 tons of fittings with the National Cast Iron Pipe Co. James B. Clow & Sons were awarded 200 tons of 6, 8 and 10-in. pipe by Lake Bluff, Ill. The National Cast Iron Pipe Co. has taken 150 tons of 3 to 24-in. fittings for Chicago. Detroit will open bids April 16 on 2200 tons of 6-in. Class B pipe, and Toledo, Ohio, will open bids April 15 on 790 tons of 24-in. Milwaukee will close April 15 on 1860 tons of plain pipe, 115 tons of lugged pipe and 58 tons of special fittings.

We quote per net ton, delivered Chicago, as follows: Water pipe, 4-in., $53.20 to $54.20; 6-in. and over, $49.20 to $50.20; Class A and gas pipe, $4 extra.

Reinforcing Bars.—March, as a whole, was not much more favorable to the placing of concrete than the midwinter months. This may explain a situation in which fresh inquiry continues to pile up but awards are slow at being placed. The severe storm of the past week forced contractors to retard or suspend construction and to hold back shipments of bars from warehouses. Shops have not revised schedules, however, for it is believed that with the first signs of favorable weather tonnage releases will be urgent and of good size. The only large letting of the week was 718 tons for the Roosevelt High School. This is the first of a large number of awards expected from the Chicago Board of Education. Billet steel reinforcing bars remain at 2.60c. per lb., Chicago warehouse. New inquiries and recent lettings are shown on page 1028.

Old Material.—Notwithstanding the fact that bad weather has retarded both the preparation and shipment of scrap, the available supply is not being absorbed and practically all grades are quoted below the prices of a week ago. The top price to users of heavy melting steel is now $14, and indications are that it may not hold. Dealers are trading in this commodity at $13.50 to $13.75, with the bulk of transactions at or near the lower figure. Several large users have taken small tonnages, but refuse to purchase the quantity lots now being offered by the trade. It is possible that there are still some $14.50 contracts unfilled, since bids on railroad lists are above the present market. Heavy melting steel on the Burlington list last week brought $14.28 per gross ton, delivered. Financial pressure appears to be forcing dealers to place material on the market as fast as possible, and consequently they are not in a position to wait out the market. Reports are general that foundries are less active than two weeks ago. Buying of specialties is in small tonnages, indicating extreme caution on the part of users. Railroad lists include 43,000 tons advertised by the Pennsylvania and 2400 tons offered by the Pere Marquette.

We quote delivered in consumers' yards, Chicago and vicinity, all freight and transfer charges paid for all items except relaying rails, including angle bars to match, which are quoted f.o.b. dealers' yards:

	Per Gross Ton	
Heavy melting steel	$13.75 to	$14.00
Frogs, switches and guards, cut apart, and miscellaneous rails	15.00 to	15.50
Shoveling steel	13.50 to	13.75
Hydraulic compressed sheets	11.75 to	12.25
Drop forge flashings	10.50 to	11.00
Forged, cast and rolled steel car wheels	18.00 to	18.50
Railroad tires, charging box size	18.25 to	18.75
Railroad leaf springs, cut apart	18.00 to	18.50
Steel couplers and knuckles	16.50 to	17.00
Coil springs	18.75 to	19.25
Low phos. punchings	17.00 to	17.50
Axle turnings	15.25 to	15.75
Relaying rails, 56 lb. to 60 lb.	25.00 to	26.00
Relaying rails, 65 lb. and heavier	26.00 to	31.00
Rerolling rails	16.25 to	16.75
Steel rails, less than 3 ft.	17.50 to	18.00
Iron rails	15.50 to	16.00
Cast iron borings	11.50 to	12.00
Short shoveling turnings	11.50 to	12.00
Machine shop turnings	8.25 to	8.75
Railroad malleable	17.50 to	18.00
Agricultural malleable	16.50 to	17.00
Angle bars, steel	16.00 to	16.50
Cast iron car wheels	16.50 to	17.00
Per Net Ton		
No. 1 machinery cast	16.75 to	17.25
No. 1 railroad cast	15.50 to	16.00
No. 1 agricultural cast	15.50 to	16.00
Stove plate	13.75 to	14.25
Grate bars	13.00 to	13.50
Brake shoes	12.50 to	13.00
Iron angle and splice bars	15.50 to	16.00
Iron arch bars and transoms	20.00 to	20.50
Iron car axles	24.50 to	25.00
Steel car axles	17.50 to	18.00
No. 1 railroad wrought	12.75 to	13.25
No. 2 railroad wrought	12.00 to	12.50
No. 1 busheling	10.75 to	11.25
No. 2 busheling	7.00 to	7.50
Locomotive tires, smooth	16.50 to	17.00
Pipes and flues	10.00 to	10.50

Warehouse Prices, f.o.b. Chicago

	Base per Lb.
Plates and structural shapes	3.10c.
Mild steel bars	3.00c.
Reinforcing bars, billet steel	2.60c.
Cold-finished steel bars and shafting—	
Rounds and hexagons	3.60c.
Flats and squares	4.10c.
Hoops	4.15c.
Bands	3.65c.
No. 28 black sheets	4.10c.
No. 10 blue annealed sheets	3.50c.
No. 28 galvanized sheets	5.25c.
Standard railroad spikes	3.55c.
Track bolts	4.55c.
Structural rivets	3.50c.
Boiler rivets	3.70c.

	Per Cent off List
Machine bolts	50 and 5
Carriage bolts	47½
Coach or lag screws	55 and 5
Hot-pressed nuts, square, tapped or blank	3.25c. off per lb.
Hot-pressed nuts, hexagons, tapped or blank	3.75c. off per lb.
No. 8 black annealed wire, per 100 lb.	$3.30
Common wire nails, base per keg	3.05
Cement coated nails, base per keg	3.05

Cleveland

Sheets Weaker—Pig Iron Declines 50c.—Motor Car Demand Shifting

CLEVELAND, April 6.—New demand for finished steel is holding up to the recent good volume, with orders confined largely to small tonnages for early requirements. Many consumers who did not take out all the steel on their first quarter contracts have had these extended through the second quarter. These contracts were carried over at the prevailing prices except on plates, which were marked up by the mills from 1.80c. to 1.90c.

Automobile production has started out this month at about the same rate that was maintained in the latter part of March. Michigan car builders, outside of one maker of lower-priced automobiles, are now turning out 9000 cars per day, as compared with 7000 to 7500 by the same companies last fall. Some changes in the production schedules appear to have been brought about by shifts in the demand from some makes of cars to others, but this has had little effect on the total output. The disappointment of the automobile industry, generally speaking, is that it has not been able to attain the increase in early spring production that it had expected. With reduced production schedules, some of the car builders are reported to have an oversupply of parts, in come cases sufficient to carry them to July, and they are suspending orders to the parts makers.

Manufacturing plants in the metal-working industries outside of the automotive field are operating well. One industry that is going very well in this territory is the manufacture of steam shovels. In the structural field only one large award is reported, 2700 tons for a store building in Cleveland. Prices are firm, with no change from 2c., Pittsburgh, for steel bars, 1.90c. for plates, and 1.90c. to 2c. for structural material.

Iron Ore.—Open market sales during the week include two 50,000-ton lots and several smaller lots. Some business in manganiferous ore was taken in the East. A St. Louis consumer is in the market for around 150,000 tons. A number of consumers that are interested in mining properties have made up their ore shipping schedules, which are about the same as last year. Some of the ore firms are devoting considerable time to ore trading, which seems to have become more of a market feature, as it enables some interests that are both producers and consumers of ore to dispose of a surplus of one grade and take in its place other grades more suitable for their mixtures.

Pig Iron.—Sales are holding up to about the recent volume. In northern Ohio demand for small lots has increased, but in the Michigan territory buying has tapered off somewhat. Two local interests sold about 12,000 tons the past week. The Westinghouse Electric & Mfg. Co. divided 2600 tons of foundry iron between the two Cleveland producers. The General Electric Co. purchased about 1600 tons for its Erie, Pa., works, and also bought iron for its Eastern plants. Its total purchases are reported to aggregate 5000 to 6000 tons. Cleveland is still the weak spot in the Central Western market. Foundry and malleable iron declined the past week 50c. a ton to $20.50, furnace, for local delivery on good-sized lots, making a total decline of $1.50 a ton in the past few weeks. However, efforts are being made to hold to $21 for small lots. For outside shipment $20, either on a Cleveland or Valley basis, is still being quoted freely for delivery in northern Ohio. However, the Valley furnace price is now holding to $20.50, and this appears to have some strengthening effect in the local market on iron for shipment to points where the competition of Valley producers is met. For shipment to more distant points, where considerable freight has to be absorbed, prices are rather irregular and some business has been taken around $18.50. The ruling Lake furnace quotations are unchanged at $22, furnace, in Michigan and $21.50 for delivery in western Ohio and Indiana. An Indianapolis melter is inquiring for 1000 tons of foundry iron and another Indiana consumer for 1000 tons of malleable iron.

Quotations below, except on basic and low phosphorus iron, are delivered Cleveland, and for local iron include a 50c. switching charge. Ohio silvery and Southern iron prices are based on a $3.02 freight rate from Jackson and $6.01 from Birmingham:

Basic, Valley furnace	$20.00
N'th'n No. 2 fdy., sil. 1.75 to 2.25	$21.00 to 21.50
Southern fdy., sil. 1.75 to 2.25	27.51 to 28.01
Malleable	21.00 to 21.50
Ohio silvery, 8 per cent	33.52
Standard low phos., Valley furnace	27.50 to 28.00

Ore Shipments.—Shipments of Lake Superior ore from Lake Erie ports during March amounted to 639,475 tons, as compared with 932,460 tons in the same month last year. The dock balance April 1 was 5,490,622 tons, as compared with 5,096,204 tons on the same date a year ago.

Semi-Finished Steel.—The extra of $1.50 a ton on wire rods in 3/8-in. and larger sizes has been eliminated, effective April 6, and mills are now quoting all sizes at the regular base of $45, Pittsburgh and Cleveland. There is not much activity in sheet bars, billets and slabs, but regular prices are apparently being firmly maintained.

Bolts, Nuts and Rivets.—While specifications for bolts and nuts continue fairly good, some of the manufacturers complain that they are not running full enough to make a good showing from the standpoint of profits. The average operation of bolt and nut works now is placed at 65 to 70 per cent. Prices are firm. The leading local rivet manufacturer has covered practically all of its trade with contracts at $2.60 per 100 lb. for large rivets.

Sheets.—The demand from some of the consuming industries has improved recently, but this appears to have been offset by some slackening in specifications from the automotive industry. Prices are hardly as firm as they have been in the past few weeks. This is particularly true of black sheets, on which round-lot orders for prompt shipment have brought out a price of 3.15c., Pittsburgh. Prices of 2.40c., Pittsburgh, on blue annealed, and 4.50c. on galvanized, or $2 a ton under the regular quotations, are not uncommon, and some of the mills are making the same concession by naming regular prices, using the Valley instead of the Pittsburgh base. However, there are reports of a price of 4.50c., Valley, on galvanized sheets.

Strip Steel.—Demand for cold-rolled strip steel has fallen off somewhat because of suspensions by the automotive industry. Recent efforts to hold to the regular price of 3.90c., Pittsburgh and Cleveland, have not been wholly successful, as large-lot buyers are able to place orders at 3.75c. Hot-rolled strip steel is firm.

Warehouse Business.—Prices are now apparently firmly maintained on steel bars, plates and structural material out of stock, and the demand continues heavy. March was a record-breaking month with one leading jobber.

Reinforcing Bars.—Several hundred tons will be required for a plant for the Devilbis Mfg. Co., Toledo. Inquiry generally is light. Rail steel bars are unchanged at 1.80c., mill.

Coke.—Demand for foundry coke is of a hand-to-mouth character, but by-product coke for domestic use shows more life. The market lacks strength, but prices show little change. Standard Connellsville foundry coke is quoted at $4.25 to $5.50, ovens, heating coke at

Warehouse Prices, f.o.b. Cleveland

	Base per Lb.
Plates and structural shapes	3.00c.
Mild steel bars	3.00c.
Cold-finished rounds and hexagons	3.90c.
Cold-finished flats and squares	4.40c.
Hoops and bands	3.65c.
No. 28 black sheets	4.10c.
No. 10 blue annealed sheets	3.25c.
No. 28 galvanized sheets	5.25c.
No. 9 annealed wire, per 100 lb.	$3.00
No. 9 galvanized wire, per 100 lb.	3.45
Common wire nails, base, per keg	3.00

$2.85 to $3.25, Painesville by-product foundry coke at $8, and Ohio by-product domestic coke at $5 for egg size and $4.50 for nut.

Old Material.—Prices have again declined on several grades, and the market is still weak. Some buying was done by mills in this district the past week, but only in small lots. A local mill bought heavy melting steel at $14.50, delivered, as compared with the dealers' asking price of $15 a week ago. Dealers bought blast furnace borings and turnings at $11.50 to $11.65 and heavy melting steel at $14.25, delivered to Cleveland mills. They are offering $16 to $16.25 for heavy melting steel and $15 for compressed sheet steel for Youngstown shipment, and $13 for blast furnace scrap for Canton delivery. Considerable scrap offered by Detroit automobile companies the past week is understood to have been sold for shipment to Toledo, Canton and Mansfield consumers.

We quote dealers' prices f.o.b. Cleveland per gross ton:

Heavy melting steel	$13.75 to $14.00
Rails for rolling	16.75 to 17.00
Rails under 3 ft.	18.50 to 19.00
Low phosphorus melting	16.75 to 17.00
Cast iron borings	11.00 to 11.25
Machine shop turnings	10.75 to 11.00
Mixed borings and short turnings	11.00 to 11.25
Compressed sheet steel	12.75 to 13.00
Railroad wrought	13.75 to 14.25
Railroad malleable	20.00 to 20.50
Light bundled sheet stampings	11.75 to 12.00
Steel axle turnings	13.50 to 14.00
No. 1 cast	17.50 to 18.00
No. 1 busheling	11.00 to 11.25
Drop forge flashings	13.25 to 13.50
Railroad grate bars	13.25 to 13.50
Stove plate	13.25 to 13.50
Pipes and flues	11.50 to 12.00

Warehouse Prices, f.o.b. New York

	Base per Lb.
Plates and structural shapes	3.24c. to 3.34c.
Soft steel bars and small shapes	3.14c. to 3.24c.
Iron bars	3.24c.
Iron bars, Swedish charcoal	7.00c. to 7.25c.
Cold-finished steel shafting and screw stock—	
Rounds and hexagons	4.00c.
Flats and squares	4.50c.
Cold-rolled strip, soft and quarter hard	6.25c.
Hoops	4.49c.
Bands	3.99c.
Black sheets (No. 28 gage)	4.50c.
Blue annealed sheets (No. 10 gage)	3.89c.
Galvanized sheets (No. 28 gage)	5.65c.
Long terne sheets (No. 28 gage)	6.35c.
Standard tool steel	12.00c.
Wire, black annealed	4.50c.
Wire, galvanized annealed	5.15c.
Tire steel, 1½ x ½ in. and larger	3.30c.
Smooth finish, 1 to 2½ x ¼ in. and larger	3.65c.
Open-hearth spring steel, bases	4.50c. and 7.00c.
	Per Cent Off List
Machine bolts, cut thread	40 and 10
Carriage bolts, cut thread	30 and 10
Coach screws	40 and 10
Boiler Tubes—	**Per 100 Ft.**
Lap welded steel, 2-in.	$17.33
Seamless steel, 2-in.	20.24
Charcoal iron, 2-in.	25.00
Charcoal iron, 4-in.	67.00

Discounts on Welded Pipe

Standard Steel—	Black	Galv.
½-in. butt	46	29
¾-in. butt	51	37
⅛-in. butt	53	39
2½-6-in. lap	48	35
7 and 8-in. lap	44	17
11 and 12-in. lap	37	12
Wrought Iron—		
½-in. butt	4	+19
¾-in. butt	11	+ 9
1-1½-in. butt	14	+ 6
2-in. lap	5	+14
3-6-in. lap	11	+ 6
7-12-in. lap	3	+16

Tin Plate (14 x 20 In.)

	Primes	Seconds
Coke, 100 lb. base box	$6.45	$6.20
Charcoal, Grade "AAA," per box—		
IXX	14.40	12.55
IXXX	15.75	13.85
IXXXX	17.00	15.05

Terne Plate (14 x 20 In.)

IC—20-lb. coating	$10.00 to $11.00
IC—30-lb. coating	12.00 to 13.00
IC—40-lb. coating	13.75 to 14.25

New York

March Steel Bookings 10 Per Cent Below Shipments—Pig Iron Less Active

NEW YORK, April 6.—The pig iron market has not yet developed a broad buying movement. Most of the tonnage booked in recent weeks has consisted of a few large orders. This week the total bookings in this district did not exceed 9000 tons, a large part of which was accounted for by only two purchases. The General Electric Co. has closed for about 5000 tons for its New England, Schenectady and Erie plants, but has not yet bought for Bayway, N. J. A maker of heating appliances has bought about 1200 tons. Orders from the smaller buyers are still few. Fresh inquiry is light, although one or two large users are tentatively sounding out the market. The Sullivan Machinery Co., Claremont, N. H., is inquiring for 300 tons, comprising 100 tons of No. 2X foundry, 100 tons of No. 1X and 100 tons of malleable. The Burnham Boiler Corporation is inquiring for 500 tons of foundry for its Lancaster, Pa., plant. Base prices on eastern Pennsylvania and Buffalo irons are unchanged, but concessions in silicon differentials on the latter have been reported. Prices on foreign irons also show little change. German No. 2X foundry is available at $20.50 to $21, duty paid port of entry, and No. 2 plain in a few instances has been sold at as low as $20.25. The New York Central inquiry for 500 tons for Frankfort, N. Y., and Laporte, Ind., is reported closed.

We quote per gross ton delivered in the New York district as follows, having added to furnace prices $2.52 freight from eastern Pennsylvania, $4.91 from Buffalo and $5.54 from Virginia:

East. Pa. No. 2 fdy., sil. 1.75 to 2.25	$24.52
East. Pa. No. 2X fdy., sil. 2.25 to 2.75	25.02
East. Pa. No. 1X fdy., sil. 2.75 to 3.25	25.52
Buffalo fdy., sil. 1.75 to 2.25	25.91
No. 2 Virginia fdy., sil. 1.75 to 2.25	29.54

Ferroalloys.—The price war for new business in ferromanganese is evidently abated or stopped altogether, but the minimum for at least two sellers is still $88, seaboard basis. One domestic producer is still at $95, having taken a good deal of business at $90. There has been no change of the $110 seaboard price of the British producers nor is it regarded as likely, now that nearly all American consumers are covered. Business in the past week has been confined to carload and small lots, total sales amounting to 200 to 300 tons, with one inquiry for 150 tons noted. There have been sales of carload and small lots of spiegeleisen at regular quotations. Specifications on contract for the manganese alloys and also for 50 per cent ferrosilicon and for standard ferrochromium continue very heavy.

Finished Steel.—The trend of steel buying is toward reduced volume, although mill conditions continue to reflect an active business. With some of the mills March orders were 10 to 12 per cent less than shipments, and developments of the first few business days of April do not point to any extraordinary change this month one way or the other. Widespread illness has diminished steel consumption; for example, a large manufacturing company in the East had 1800 of its 20,000 employees on sick leave last week. Absence of officials has delayed specific purchasing. Structural steel lettings are only moderately active, the speculative boom in New York having subsided to some extent. Banks and investment houses closely scrutinize every project. Railroad buying continues disappointingly small. The Pennsylvania Railroad has ordered 200 locomotives and will probably buy upward of 2000 cars next week, but otherwise there is little pending for railroad rolling stock. The steel price situation is the same as during first quarter, except on plates, which are now being firmly held at the higher level of 1.90c., Pittsburgh. Many consumers got under cover before April 1 by specifying in full against first quarter contracts, most of which were on mill books at 1.80c. There is still slight weakness in black and gal-

vanized sheets, but the leading mills are ignoring the $2 a ton concessions offered by one or two sources.

We quote for mill shipments, New York delivery, as follows: Soft steel bars, 2.34c. to 2.44c. per lb.; plates, 2.24c.; structural shapes, 2.24c. to 2.34c.; bar iron, 2.24c.

Cast Iron Pipe.—Several municipalities are reported preparing specifications on small lots of bell and spigot pipe but current inquiry is small. Private buying continues in fair volume and prices are quite firm except on tonnages where competition is particularly keen. A southern foundry recently closed about 450 tons of pipe with a city on the east coast of Florida.

We quote pressure pipe per net ton, f.o.b. New York in carload lots, as follows: 6-in. and larger, $50.60 to $52.60; 4-in. and 5-in., $55.60 to $57.60; 2-in., $65.60 to $67.60; with $5 additional for Class A and gas pipe.

Coke.—The market continues quiet with only moderate purchasing of either foundry or furnace. Standard foundry coke ranges from $4.50 to $5.50 per ton, Connellsville. By-product is from $10.50 to $11.52 per ton, delivered Newark or Jersey City, N. J.

Warehouse Business.—Demand has been light since April 1, business having slackened considerably during the Easter holidays. The latter part of March, however, marked a general improvement in the volume of purchases of all kinds of products from stock, particularly structural material. Galvanized sheets are quite active and prices firm on a 5.65c. per lb. base. Black sheets are less active, but the quotation of 4.50c. per lb. base continues the minimum on sales out of stock.

Old Material.—Consumer demand is still limited and buying prices of brokers show no advance from previous weeks. No. 1 heavy melting steel is unchanged at $15.50 to $16.25 per ton, delivered to eastern Pennsylvania consuming points, shipments going forward to Bethlehem, Conshohocken, Coatesville, Pa., and Claymont, Del. Specification pipe is being purchased at $15.50, $15.75, $16 and $16.50 per ton, delivered, the lower quotations being for delivery to a Columbia, Pa., consumer and the higher prices delivered to Lebanon, Pa. Stove plate is quiet and unchanged both for steel mill consumption in eastern Pennsylvania and local foundry use.

Buying prices per gross ton, New York, follow:

Heavy melting steel (yard)	$10.50 to $11.00
Heavy melting steel (railroad or equivalent)	12.00 to 12.75
Rails for rolling	12.75 to 13.00
Relaying rails, nominal	23.00 to 24.00
Steel car axles	19.50 to 20.00
Iron car axles	23.50 to 24.00
No. 1 railroad wrought	14.50 to 15.00
Forge fire	10.00 to 10.50
No. 1 yard wrought, long	13.50 to 14.00
Cast borings (steel mill)	9.75 to 10.25
Cast borings (chemical)	12.50 to 13.00
Machine shop turnings	9.75 to 10.25
Mixed borings and turnings	10.00 to 10.25
Iron and steel pipe (1 in. diam., not under 2 ft. long)	11.75 to 12.75
Stove plate (steel mill)	9.75 to 10.25
Stove plate (foundry)	11.25 to 11.75
Locomotive grate bars	11.25 to 11.75
Malleable cast (railroad)	16.00 to 17.00
Cast iron car wheels	13.50 to 14.00
No. 1 heavy breakable cast	12.50 to 14.50

Prices which dealers in New York and Brooklyn are quoting to local foundries per gross ton follow:

No. 1 machinery cast	$17.00 to $17.50
No. 1 heavy cast (column, building material, etc.), cupola size	15.50 to 16.00
No. 2 cast (radiators, cast boilers, etc.)	14.50 to 15.00

Mills of the Columbia Steel Co., Butler, Pa., are to be electrically driven. The company has ordered of the General Electric Co. three 3000-kw. motor-generator sets, four 2000-hp. motors for the four 30-16-in. continuous mills and one reversing motor with flywheel set for driving the 27-in. universal mill, while two 750-kw. motor-generator sets and a reversing motor with flywheel set, for driving the 34-in. slabbing mill, will be furnished by the Westinghouse Electric & Mfg. Co. Controls and other auxiliary equipment are yet to be placed.

Concrete Reinforcing Steel Institute, formerly located at 160 North LaSalle Street, Chicago, has moved its office to 2112 Tribune Tower. M. A. Beeman is secretary.

Philadelphia

Steel Buying Shows a Slight Falling Off, But Operations Continue High

PHILADELPHIA, April 6.—Opinion is quite general in the local steel trade that incoming steel business is not sufficient to maintain for much longer the high rate of mill operation that has carried over from first quarter. There is no marked falling off, and in fact the aggregate of miscellaneous small orders when figured up at end of a day or a week is surprisingly good, but there are unmistakable signs in some lines of finished products of a lessened demand. Large tonnage projects, such as structural steel work and railroad equipment, are in small number. About 6000 or 7000 tons of plates will be required by the Baldwin Locomotive Works for the 175 locomotives it will build for the Pennsylvania Railroad and fully 20,000 to 25,000 tons will be needed for cars which this road probably will order next week; otherwise there is no work in the market involving large lots of steel.

Steel prices remain fairly steady, with the possible exception of black and galvanized sheets, on which there is some shading. Plates are being held at 1.90c., Pittsburgh, but there is comparatively little new business, as most consumers have covered their nearby requirements.

The pig iron market is very quiet, but foundry iron is firm at $22, base, eastern Pennsylvania furnaces, notwithstanding continued sales of foreign iron at prices from $1 to $2 or more under this figure. There is a moderate amount of scrap buying, but prices have made no further gain.

Pig Iron.—Eastern Pennsylvania furnaces are well sold ahead and are successfully maintaining prices of $22 on No. 2 plain and $22.50 on No. 2X in the face of continued foreign competition at quotations around $20 to $21, Philadelphia. Foreign iron has figured more largely in recent sales than domestic iron, because of this disparity in price. Imports are expected to diminish, however, as foreign producers are asking slightly higher prices. The National Radiator Co. is inquiring for 1500 to 3000 tons for its Trenton, N. J., plant, and has bought for its Johnstown, Pa., plant from a western Pennsylvania furnace.

The following quotations are, with the exception of those on low phosphorus iron, for delivery at Philadelphia and include freight rates varying from 76c. to $1.63 per gross ton:

East. Pa. No. 2 plain, 1.75 to 2.25 sil.	$22.76 to $23.63
East. Pa. No. 2X, 2.25 to 2.75 sil.	23.26 to 24.13
East. Pa. No. 1X	23.76 to 24.63
Virginia No. 2 plain, 1.75 to 2.25 sil.	27.67 to 28.67
Virginia No. 2X, 2.25 to 2.75 sil.	28.17 to 29.17
Basic, delivered eastern Pa.	21.75 to 22.50
Gray forge	22.00 to 22.50
Malleable	23.00 to 23.50
Standard low phos. (f.o.b. furnace)	22.50 to 23.50
Copper bearing low phos. (f.o.b. furnace)	23.50 to 24.00

Ferromanganese.—Quotations of $88 and $90 are available on ferromanganese, but the volume of buying is small because nearly all consumers are covered for some time. One furnace company holds to a $95 quotation.

Billets.—Eastern mills quote $35, Pittsburgh, on rerolling billets and $5 higher on forging billets. There is very little buying.

Plates.—Eastern plate mills entered the second quarter with fairly full rolling schedules, nearly all of them having taken enough business in the last two weeks of March to run them through this month at a good rate of operation. On new business 1.90c., Pittsburgh, is being uniformly quoted, but the volume of new orders is small.

Structural Material.—Fabricators are busy on work contracted for in the last few months and are drawing upon the mills freely for plain material, with the result that Eastern structural mills have a good operation. The volume of new lettings and inquiries for building

construction has fallen off, however. The price situation is unchanged, quotations of Eastern mills ranging from 1.80c. to 1.90c., Pittsburgh.

Bars.—Steel bars remain firm at 2c., Pittsburgh. The volume of business has shown a slight falling off, resulting in some gaps in rolling schedules, thereby enabling mills to make better deliveries. Bar iron is still quoted by Eastern makers at 2.22c., Philadelphia.

Sheets.—Concessions on black sheets are more frequent than on any other grade, usually amounting to $2 a ton. On galvanized there are occasional concessions, and on blue annealed scarcely any. The situation with respect to the maintenance of prices is said to be better than a week ago because most of the mills started out second quarter with a fairly good tonnage of new specifications.

Warehouse Business.—The demand for steel out of jobbers' stocks has improved in the last week or two. Prices have not changed except that steel bars are slightly firmer, 3c. now being reported as the minimum.

Old Material.—Prices of all grades of scrap are the same as quoted a week ago, with the single exception of heavy breakable cast, on which the minimum is now $17, a slight advance. Offers of $16.50 and $16.75 are being made by steel mills for heavy melting steel, but brokers are loath to commit themselves heavily at these figures. The Pennsylvania Railroad will close bids this week on a large list of scrap.

We quote for delivery, consuming points in this district, as follows:

No. 1 heavy melting steel	$16.50 to $16.75
Scrap rails	16.50 to 16.75
Steel rails for rolling	17.00 to 17.50
No. 1 low phos., heavy, 0.04 per cent and under	20.00 to 20.50
Couplers and knuckles	19.00 to 19.50
Rolled steel wheels	19.00 to 19.50
Cast iron car wheels	17.50 to 18.00
No. 1 railroad wrought	17.50 to 18.00
No. 1 yard wrought	16.50 to 17.00
No. 1 forge fire	14.50 to 15.00
Bundled sheets (for steel works)	14.00
Mixed borings and turnings (for blast furnace)	13.00 to 13.50
Machine shop turnings (for steel works)	14.00
Heavy axle turnings (or equivalent)	15.00
Cast borings (for steel works and rolling mill)	14.00
Cast borings (for chemical plant)	15.50 to 16.00
No. 1 cast	17.50 to 18.50
Heavy breakable cast (for steel works)	17.00
Railroad grate bars	14.50
Stove plate (for steel works)	14.50
Wrought iron and soft steel pipes and tubes (new specifications)	16.00 to 16.50
Shafting	21.00 to 22.00
Steel axles	22.00 to 23.00

Imports.—Pig iron imports last week were somewhat below the average of previous weeks, amounting to only 3295 tons, of which 1495 tons came from India, 1100 tons from Germany and 700 tons from the Netherlands. Other imports were as follows: Iron ore from Germany, 579 tons; structural steel from Belgium, 221 tons; steel bars from Belgium, 23 tons; bar iron from Sweden, 19 tons; charcoal iron bars from Sweden, 20 tons; hoop steel from England, 9 tons; galvanized steel strips from England, 10 tons; ferromanganese from England, 30 tons; spiegeleisen from England, 200 tons; chrome ore from Portuguese East Africa, 3500 tons; steel blooms from France, 49 tons.

Warehouse Prices, f.o.b. Philadelphia

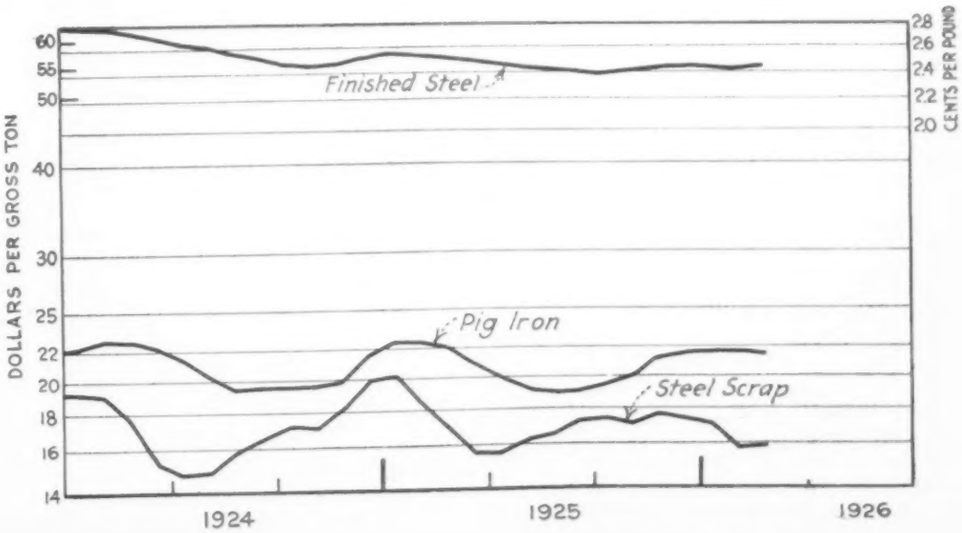
	Base per Lb.
Tank steel plates, ¾-in. and heavier	2.80c. to 3.00c.
Tank steel plates, ¼-in.	3.00c.
Structural shapes	2.75c. to 2.90c.
Soft steel bars, small shapes and iron bars (except bands)	3.00c.
Round-edge iron	3.50c.
Round-edge steel, iron finished, 1½ x 1½ in.	3.50c.
Round-edge steel, planished	4.30c.
Reinforcing steel bars, square, twisted and deformed	3.00c.
Cold-finished steel, rounds and hexagons	4.00c.
Cold-finished steel, squares and flats	4.50c.
Steel hoops	4.00c. to 4.25c.
Steel bands, No. 12 gage to ¼-in., inclusive	3.75c. to 3.90c.
Spring steel	5.00c.
No. 28 black sheets	4.65c.
No. 10 blue annealed sheets	3.50c.
No. 28 galvanized sheets	5.85c.
Diamond pattern floor plates—	
¼-in.	5.30c.
⅜-in.	5.50c.
Rails	2.20c.
Tool steel	8.50c.
Norway iron	6.50c.

Scrap Prices Up in March

Average prices of heavy melting steel scrap at Chicago, Pittsburgh and Philadelphia in March were $15.83 per gross ton, compared with $15.50 in February. Both figures, however, were considerably lower than the $16.97 of January. The table and diagram set forth the monthly averages for this steel scrap composite, alongside those of pig iron and finished steel. The table covers 15 months; the diagram, 27 months.

Composite Prices on Iron and Steel Products

	Steel Scrap	Pig Iron	Finished Steel, Per Lb.
January, 1925	$20.10	$22.44	2.560c.
February	18.27	22.50	2.546c.
March	16.92	21.99	2.537c.
April	15.48	20.95	2.503c.
May	15.46	19.85	2.460c.
June	16.09	19.22	2.440c.
July	16.46	18.96	2.435c.
August	17.23	19.01	2.413c.
September	17.42	19.38	2.397c.
October	17.08	19.92	2.405c.
November	17.63	21.17	2.433c.
December	17.37	21.54	2.450c.
January, 1926	16.97	21.54	2.447c.
February	15.50	21.52	2.428c.
March	15.83	21.30	2.433c.



Steel Scrap Has Been Weak Since the Break of the Year. Its recession is now being followed by pig iron, which recorded a sharp drop this week (not shown on the diagram)

Boston

First Quarter Pig Iron Imports Lower Than a Year Ago—Coke Drops

BOSTON, April 6.—The pig iron market is quiet. Sales the past week included Indian, English, German, Buffalo, and eastern New York State brands, but most of the tonnage consisted of foreign iron. In the aggregate, however, sales did not exceed 3000 tons. Indian iron sold at $22.50 to $23.50 a ton, on dock, duty paid, depending on grades; English brought $21 to $22.50; German No. 2X foundry, $21.50, and No. 1X, $22. A little German iron was sold for deliveries extending into the third quarter. Buffalo iron remains at $21, furnace base, or $25.91, delivered. Buyers report that the silicon differentials are being shaded in some instances. New York State iron is selling on a delivered base slightly under that on Buffalo iron. One western Pennsylvania furnace has advanced prices 25c. a ton to $20.75, furnace base, and a little business has been put through at the new prices. A recent inquiry for 500 tons of malleable iron from a Rhode Island melter brought offers of $20.50 a ton, furnace, for western Pennsylvania iron and $21 for Buffalo iron.

We quote delivered prices on the basis of the latest sales as follows, having added $3.65 freight from eastern Pennsylvania, $4.91 from Buffalo, $5.92 from Virginia, and $9.60 from Alabama:

East. Penn., sil. 1.75 to 2.25	$25.65 to $26.15
East. Penn., sil. 2.25 to 2.75	26.15 to 26.65
Buffalo, sil. 1.75 to 2.25	25.91
Buffalo, sil. 2.25 to 2.75	26.41
Virginia, sil. 1.75 to 2.25	29.92
Virginia, sil. 2.25 to 2.75	30.42
Alabama, sil 1.75 to 2.25	31.60 to 32.60
Alabama, sil. 2.25 to 2.75	32.10 to 33.10

Shapes and Plates.—Somewhat more activity is noted in the fabricating market. Competition among fabricators is exceptionally keen and recent lettings, in some instances, have been made at very attractive prices. Stone & Webster, Inc., Boston, contemplating the erection of an office building, is now negotiating with a local bank for the old John Hancock Mutual Life Insurance Co. building, 200 Devonshire Street. The Providence Iron & Steel Co., Providence, R. I., has been offered 165 tons of steel for a school at Walpole, Mass., but according to latest reports has not closed. Shapes are firm at 1.90c. per lb., Pittsburgh base, and plates range from 1.80c. to 1.90c.

Cast Iron Pipe.—Danvers, Mass., has awarded 800 tons of 6-in. to 20-in. pipe to the United States Cast Iron Pipe & Foundry Co. French pipe interests were the low bidders. The Warren Foundry & Pipe Co. was the low bidder on 450 tons of 6-in. to 16-in. pipe required by Brookline, Mass. Holyoke, Mass., has yet to award 6000 tons of pipe, and Quincy, Mass., 3805 tons, on which foreign pipe makers were the low bidders. Cambridge, Mass., has closed bids on 100 tons of 6-in. to 12-in. pipe, and Lowell on approximately 100 tons of 12-in. Pipe makers are well sold ahead on small sizes, and prices are firm. The market for large sizes is less stable. Prices quoted openly on domestic pipe are: 4-in., $60.10 a ton, delivered common Boston freight rate points; 6-in. and larger, $55.10. The usual $5 differential is asked on Class A and gas pipe.

Imports.—Germany dropped from first to fifth place in pig iron imports during March. Total imports at Boston were 10,710 tons, made up as follows: Belgian, 3137 tons; English, 3050 tons; Indian, 1745 tons; Dutch, 1664 tons, and German, 1114 tons. Imports for February were 10,659 tons, while those of March last year were 11,365 tons. Imports the first quarter of this year were 25,430 tons, contrasted with 33,278 for the first three months of 1925. Imports of coke in March were 9513 tons of Scotch by-product.

Coke.—The New England Coal & Coke Co. and the Providence Gas Co. have reduced their prices on by-product foundry coke from $13 a ton, delivered within a $3.10 freight rate zone, to $12.50. The last previous change in price made by the New England Coal & Coke Co. was on Oct. 26, 1925, from $12 a ton, delivered, to $13. On Nov. 3, the Providence Gas Co. advanced from $12.50 a ton, delivered, to $13. On April 9, 1925, both companies reduced their price from $12 a ton, delivered, to $11.50. Thus the price of coke today is $1 a ton higher than a year ago. Specifications against first half by-product foundry coke contracts have been fairly heavy so far this month. It is possible the New England ovens will soon throw open their books for last half contracts. Heating coke, in all sizes, is now $9 a ton, on cars ovens, contrasted with $9.50 heretofore. The best grades of 72-hr. Connellsville foundry coke are offered on contract for the rest of 1926 at $5.50 a ton, ovens, or $10.84 a ton, delivered New England.

Old Material.—A wide spread in prices for various kinds of scrap is still a leading market feature. Good heavy melting steel remains in limited supply at $11 to $11.75 a ton, on cars shipping point, while common yard steel for eastern Pennsylvania delivery continues to move at around $10.60 and $10.80. Pipe is selling in a small way at $11.50 to $12, mostly at $11.50 to $11.75, but sales at $11 are noted. Machine shop turnings are slightly easier, $9.25 a ton being the top price reported as compared with $9.50 the previous week. Rolling mill borings and mixed borings and turning also appear easier in price. Choice chemical borings, on the other hand, are bringing $11.75 a ton, which compares with $11.50, the top price the previous week. Offers on yard wrought and long bundled cotton ties have been somewhat reduced, and offers by New England foundries for machinery cast are lower. Railroad malleable is scarce. Offers to buy on a basis of $19.50 to $20, delivered, have failed to bring out material.

The following prices are for gross-ton lots delivered consuming points:

Textile cast	$19.25 to $19.75
No. 1 machinery cast	19.00 to 19.50
No. 2 machinery cast	14.50 to 15.50
Stove plate	14.00 to 14.50
Railroad malleable	19.50 to 20.00

The following prices are offered per gross-ton lots, f.o.b. Boston rate shipping points:

No. 1 heavy melting steel	$10.60 to $11.75
No. 1 railroad wrought	13.00 to 13.50
No. 1 yard wrought	12.00 to 12.50
Wrought pipe (1 in. in diameter, over 2 ft. long)	11.00 to 11.75
Machine shop turnings	8.75 to 9.25
Cast iron borings, chemical	11.00 to 11.75
Cast iron borings, rolling mill	8.75 to 9.25
Blast furnace borings and turnings	8.25 to 8.75
Forged scrap	9.00 to 10.00
Bundled skeleton, long	9.00 to 10.00
Forged flashings	9.00 to 10.00
Bundled cotton ties, long	8.75 to 9.25
Bundled cotton ties, short	9.50 to 10.00
Shafting	16.75 to 17.00
Street car axles	16.50 to 17.00
Rails for rerolling	12.50 to 13.00
Scrap rails	11.00 to 11.50

St. Louis

Impending Freight Rate Advance Fails to Stimulate Steel Buying

ST. LOUIS, April 6.—The opening of the second quarter saw some improvement in pig iron buying. The St. Louis Coke and Iron Corporation, which did most of the business, sold 1000 tons of foundry iron to a manufacturer of heating appliances, 700 tons of car wheel iron, 400 tons to a stove manufacturer, and small lots totaling 250 tons. Inquiries from eight to 10 melters total 8000 to 10,000 tons. The Granite City maker's production during March was the largest of any month since it first blew in its furnace on Feb. 28, 1921. Foundries report a falling off in business during the last 10 days. Prices are unchanged.

We quote delivered consumers' yards, St. Louis, as follows, having added to furnace prices, $2.16 freight from Chicago, $4.42 from Birmingham, all rail, and 81c. average switching charge from Granite City:

Northern fdy., sil. 1.75 to 2.25	$25.16
Northern malleable, sil. 1.75 to 2.25	25.16
Basic	25.16
Southern fdy., sil. 1.75 to 2.25	$26.42 to 27.92
Granite City iron, sil. 1.75 to 2.25	24.31 to 24.81

Coke.—Foundry coke is in good demand, and consumers are now figuring on renewing contracts that expire within the next month or two. Domestic coke

demand is keeping up well, in view of the rising temperature.

Finished Iron and Steel.—Even the advantage of having shipments made before April 25, when a freight rate advance of nearly $1 a ton from Chicago becomes effective, has failed to stimulate interest in future requirements of finished iron and steel, and consumers continue to buy from hand to mouth. Both for warehouses and mills business during March was ahead of the same period last year, with a greater number of orders placed, but there has been a slowing down of business during the last 10 days. The National Enameling & Stamping Co. is operating its sheet department at 89 per cent of capacity, and its business is reported to be a little better. Prices on sheets are firm, with little cutting reported.

Old Material.—The market for old material continues weak. Consumers in the district bought heavily at low prices early in the year and have sufficient stocks on hand to last several months more, unless, of course, there should be a marked increase in their bookings. Complaint is made, however, that very little new business is being received. Dealers are not speculating, and with large stocks on hand, are buying virtually nothing. Railroad lists remain heavy, accentuating the weakness of the market. The Pennsylvania Lines offer 42,000 tons this week, and other lists include: Missouri Pacific, 4000 tons; Missouri-Kansas-Texas, 2300 tons; Chicago & Alton, 2000 tons; St. Louis-San Francisco, 1400 tons, and Chicago & Eastern Illinois, 500 tons.

We quote dealers' prices f.o.b. consumers' works, St. Louis industrial district and dealers' yards, as follows:

	Per Gross Ton	
Iron rails	$13.00 to	$13.50
Rails for rolling	15.75 to	16.25
Steel rails less than 3 ft.	17.00 to	17.50
Relaying rails, 60 lb. and under	24.00 to	25.00
Relaying rails, 70 lb. and over	30.00 to	31.00
Cast iron car wheels	16.50 to	17.00
Heavy melting steel	13.50 to	14.00
Heavy shoveling steel	13.50 to	14.00
Frogs, switches and guards cut apart	15.00 to	15.50
Railroad springs	17.25 to	17.75
Heavy axle and tire turnings	10.25 to	10.75
No. 1 locomotive tires	16.50 to	17.00
Per Net Ton		
Steel angle bars	12.50 to	13.00
Steel car axles	17.75 to	18.25
Iron car axles	22.50 to	23.00
Wrought iron bars and transoms	19.50 to	20.00
No. 1 railroad wrought	11.50 to	12.00
No. 2 railroad wrought	12.00 to	12.50
Cast iron borings	9.00 to	9.50
No. 1 busheling	10.50 to	11.00
No. 1 railroad cast	14.75 to	15.25
No. 1 machinery cast	16.50 to	17.00
Railroad malleable	13.50 to	14.00
Machine shop turnings	6.75 to	7.25
Bundled sheets	7.00 to	7.50

San Francisco

Large Foreign Coke Shipments Arrive—Steel Buying Light

SAN FRANCISCO, April 3 (*By Air Mail*).—The arrival of about 7000 tons of foreign coke, an inquiry put out by the Southern Pacific Co. for 1000 tons of foundry iron and the scheduled strike of union carpenters against the employment of non-union men on construction jobs have been the chief features in a week that has failed to develop either stronger general buying or fresh inquiry for the heavier forms of steel. The carpenters' strike, which a week ago many believed would precipitate a general walkout of all union men employed in the building trades, has so far failed to affect the progress of construction work. While general buying is consistent, the volume is small. Prices are fairly firm.

Pig Iron.—The Southern Pacific Co. is inquiring for 1000 tons of foundry iron and will open bids April 7. No other large inquiries have developed, although regular sales and contract deliveries are about the same in tonnage as at this time last year.

	Per Gross Ton	
*Utah basic	$27.00 to	$28.00
*Utah foundry, sil. 2.75 to 3.25	27.00 to	28.00
**English foundry, sil. 2.75 to 3.25	25.00 to	26.00
**Belgium foundry, sil. 2.75 to 3.25		24.00
**Dutch foundry, sil. 2.75 to 3.25		24.00
**Indian foundry, sil. 2.75 to 3.25	24.00 to	25.00
**German foundry, sil. 2.75 to 3.25		24.00
**Chinese foundry, sil. 3 to 3.50		25.50

*Delivered San Francisco.
**Duty paid, f.o.b. cars San Francisco.

Shapes.—Lettings for the week total 585 tons. Bids are being asked on 575 tons for the Kress Building, San Francisco. The largest individual award of the week, 265 tons for a San Francisco apartment house, was taken by the Central Iron Works. While some buyers believe that less than 2.35c., c.i.f. Coast ports is obtainable on large tonnages, practically all of the Eastern mills continue to quote that figure and no business is known to have been placed below it.

Warehouse Prices, F.o.b. St. Louis

	Base per Lb.
Plates and structural shapes	3.35c.
Bars, mild steel or iron	3.15c.
Cold-finished rounds, shafting and screw stock	3.75c.
No. 28 black sheets	4.60c.
No. 10 blue annealed sheets	3.60c.
No. 28 galvanized sheets	5.70c.
Black corrugated sheets	4.65c.
Galvanized corrugated sheets	5.75c.
Structural rivets	3.65c.
Boiler rivets	3.85c.
	Per Cent off List
Tank rivets, ⅞-in. and smaller	70
Machine bolts	50 and 5
Carriage bolts	47½
Lag screws	55 and 5
Hot-pressed nuts, square, blank or tapped	3.25c. off per lb.
Hot-pressed nuts, hexagons, blank or tapped	3.75c. off per lb.

Warehouse Prices, F.o.b. San Francisco

	Base per Lb.
Plates and structural shapes	3.30c.
Mild steel bars and small angles	3.30c.
Small channels and tees, ¾-in. to 2¾-in.	3.90c.
Spring steel, ¼-in. and thicker	6.30c.
No. 28 black sheets	4.75c.
No. 10 blue annealed sheets	3.75c.
No. 28 galvanized sheets	6.00c.
Common wire nails, base per keg	$3.50
Cement coated nails, base per keg	3.00

Plates.—Both 2.25c. and 2.30c., c.i.f. Coast ports, are being quoted by Eastern mills, although the latter figure is the more common. Contracts reported closed during the week will require 1280 tons, the largest individual letting being 600 tons for two 80,000-bbl. tanks for the Wilshire Oil Co., Los Angeles, taken by the Llewellyn Iron Works. The 500 tons required for a pipe line by The Dalles, Ore., has been placed with King Brothers Boiler Works, Portland.

Bars.—Two hundred and twenty tons of reinforcing bars for the Masonic Home at Zenith, Wash., has been awarded to the Pacific Coast Steel Co., and 250 tons for a retaining wall in San Francisco has been taken by Badt-Falk & Co. Local reinforcing bar jobbers continue to quote as follows: 2.80c., base, per lb. on lots of 250 tons; 2.95c., base, per lb. on carload lots, and 3.20c., base, on less-than-carload lots.

Cast Iron Pipe.—Several projects are pending, but awards during the past week total less than 500 tons. Quotations remain unchanged at $50 to $52, base, water shipment, San Francisco. The city of Seattle has placed 200 tons of 8-in. Class B and C cast iron pipe with the American Cast Iron Pipe Co., and distributers in Seattle have purchased 235 tons of miscellaneous sizes from the American Cast Iron Pipe Co.

Steel Pipe.—The Shell Co. of California has placed 150 tons of standard line pipe with the Grinnell Co. of the Pacific.

Ferroalloys.—The Southern Pacific Co. has closed bids on 150 tons of ferromanganese. Local importers quote English 80 per cent ferromanganese at $110 to $112, duty paid, San Francisco.

Coke.—Two local importers have received shipments of English coke both here and in Los Angeles. About 7000 tons is being unloaded here and about 6000 tons in Los Angeles. Importers quote as follows:

English beehive, $15 to $16 per ton at incoming dock, and English by-product, $12 to $14; German by-product, $11.50 to $12.

Birmingham

Pipe Shops Producing at High Rate—Pig Iron Orders Accumulate

BIRMINGHAM, April 6.—Alabama furnaces are gradually building up backlogs, and there are indications that the pig iron output for the quarter will be entirely committed before the second month is over. Stocks of surplus iron on yards are not large, and there is no probability of an increase in production. Prices are firm at $22 per ton, base Birmingham, on No. 2 foundry, with small lots for spot shipment still bringing as high as $23. There is further evidence that some of the larger melters of iron have been making estimates of their probable needs for the latter part of the current quarter and well into the third quarter, and it is not unlikely that this will result in more active buying. The production of iron in this State is not expected to increase this quarter. Those furnaces which are being blown in will only replace stacks which are out for relining. Steady deliveries are being asked for by melters, despite the fact that there is more or less stock on most consumers' yards. Two furnaces are to be blown in and the same number go out in the next few days, all basic iron producers. The Woodward Iron Co. is pushing the rebuilding of its No. 2 furnace, damage to which was not so great as first estimated.

We quote per gross ton, f.o.b. Birmingham district furnaces, as follows:

No. 2 foundry, 1.75 to 2.25 sil...	$22.00
No. 1 foundry, 2.25 to 2.75 sil...	22.50
Basic	22.00
Charcoal, warm blast	$30.00 to 32.00

Rolled Steel.—Shipments are moving forward steadily and steel output is heavy, although repairs to open-hearth furnaces may cause a slight curtailment. Plates, sheets and other forms of steel are in better demand in this district. The Tennessee Coal, Iron & Railroad Co., with a special roll brought in from the North, has been working on an order for 5100 tons of 39-ft. rails for export to Japan. Shipments of iron and steel products into Florida have not materially increased since the lifting of the railroad embargo, because tonnage for that State has been satisfactorily handled by water. Soft steel bars are quoted at 2.15c. to 2.25c., base Birmingham, and tank plates and structural shapes at 2.05c. to 2.15c.

Cast Iron Pipe.—Several cast iron pressure pipe makers in Alabama have accumulated considerable unfilled tonnage and are pressing output to prevent congestion in outward movement of pipe. Prices remain around $40, base Brimingham, on 6-in. and larger diameters.

Coke.—Production is being maintained, and both local consumption and shipments out of the district remain large, with the prices unchanged at $5.50 per net ton, Birmingham, on foundry coke. All by-product coke ovens are producing to capacity.

Old Material.—While considerable old material is moving into the yards of dealers and to consumers, there is very little new business being transacted. Consumers are taking tonnages ordered several months ago. Prices are low, but give no signs of declining. Heavy melting steel is still quoted at $13, and very little is being bought by the larger consumers.

We quote per gross ton, f.o.b. Birmingham district yards, as follows:

Cast iron borings, chemical	$15.00 to $16.00
Heavy melting steel	13.00 to 14.00
Railroad wrought	12.00 to 13.00
Steel axles	18.00 to 19.00
Iron axles	18.00 to 19.00
Steel rails	18.00 to 18.50
No. 1 cast	17.00 to 17.50
Tramcar wheels	17.00 to 17.50
Car wheels	16.00 to 16.50
Stove plate	14.00 to 14.50
Machine shop turnings	8.00 to 8.50
Cast iron borings	8.00 to 9.00
Rails for rolling	15.00 to 16.00

Cincinnati

Pig Iron Declines 50c.—Barge Shipment of Steel to Evansville

CINCINNATI, April 6.—Interest in the local market has centered on the purchase of 8000 tons of Northern iron by the Standard Sanitary Mfg. Co., Pittsburgh, for its Louisville, Ky., plant. This is the first time that the company has bought Northern iron exclusively. The business was divided between two Ironton furnaces and is said to have been placed at a delivered price of $22.65. The major portion of the tonnage will be shipped by barge, but some of it will go to Louisville by rail. Aside from this outstanding order, the total sales for the week amounted to approximately 4000 tons, consisting of scattered lots, of which the largest was 400 tons. Foundry iron in the Ironton district can be secured for $20.50, base Ironton, a 50c. reduction from the former level, and it is likely that an attractive tonnage would bring out a price of $20. The movement of Tennessee iron has been light, with $21.50, base Birmingham, the prevailing quotation. Alabama producers are adhering to $22, base Birmingham, and have enough business in the South to make it unnecessary for them to come into this territory for second quarter tonnage. Jackson County silvery iron is firm at the regular schedule of $30.50, furnace, for 8 per cent. There have been several small sales of malleable at $20.50, base Ironton. The Hooven-Owens-Rentschler Co., Hamilton, Ohio, is inquiring for 1500 tons of high manganese malleable iron for second quarter delivery, while a Louisville melter is expected to buy 300 tons of foundry iron. The Cranberry furnace at Johnson City, Tenn., which has been producing low phosphorus iron, was blown out March 31.

Based on freight rates of $3.69 from Birmingham and $1.89 from Ironton, we quote f.o.b. Cincinnati:

Alabama fdy., sil. 1.75 to 2.25 (base)	$25.69
Alabama fdy., sil. 2.25 to 2.75	26.19
Tennessee fdy., sil. 1.75 to 2.25	25.19
Southern Ohio silvery, 8 per cent	32.39
So. Ohio fdy., sil. 1.75 to 2.25	$21.89 to 22.39
So. Ohio malleable	21.89 to 22.39

Finished Material.—The delivery by barge of 8000 tons of bars, plates and shapes from a Pittsburgh mill to Evansville, Ind., jobbers was the outstanding feature the past week. It is reported, but not confirmed, that the delivered price was 2.02c. per lb. Evansville, with contiguous territory, has become the most highly competitive section in this district, with Chicago and Pittsburgh mills making strenuous efforts to secure the business. With the possible exception of one mill, specifications and orders booked in the past week have been only fair and far below normal for this season. The prolongation of the winter season has undoubtedly held up outdoor construction work, and consequently the movement of structural steel has been slow. Consumers are manifesting interest only in small lots for their immediate needs and are asking for prompt shipments in most cases. Bars have been in moderate demand at 2c., base Pittsburgh. Plates are firm at 1.90c., base Pittsburgh; lower quotations have disappeared in the

Warehouse Prices, F.o.b. Cincinnati

	Base per Lb.
Plates and structural shapes	3.40c.
Bars, mild steel or iron	3.30c.
Reinforcing bars	3.30c.
Hoops	4.00c. to 4.25c.
Bands	3.95c.
Cold-finished rounds and hexagons	3.85c.
Squares	4.35c.
Open-hearth spring steel	4.75c. to 5.75c.
No. 28 black sheets	4.10c. to 4.30c.
No. 10 blue annealed sheets	3.60c.
No. 28 galvanized sheets	5.25c. to 5.40c.
Structural rivets	3.75c.
Small rivets	65 per cent off list
No. 9 annealed wire, per 100 lb	$3.00
Common wire nails, base per keg	$2.95 to 3.05
Cement coated nails, base per keg	2.25
Chain, per 100 lb	7.55
	Net per 100 ft.
Lap welded steel boiler tubes, 2-in	$18.00
4-in.	38.00
Seamless steel boiler tubes, 2-in	19.00
4-in.	39.00

past 10 days. Structural shapes are bringing 1.90c., base Pittsburgh, but sales have been limited to small quantities. Automobile makers have authorized mills in this territory to release a liberal tonnage of sheets. Black sheets are bringing 3.25c. to 3.35c., base Pittsburgh, while galvanized sheets are selling at 4.50c. to 4.60c., base Pittsburgh. Blue annealed sheets are firm at 2.50c., base Pittsburgh, and automobile body sheets are steady at 4.40c. The call for wire products has been the best in several months. To obtain business on common wire nails at river points Eastern mills virtually have abandoned quotations of $2.65 per keg, Pittsburgh, and are willing to accept orders at $2.79, delivered Cincinnati, which is equivalent to $2.65, base Ironton. Plain wire is quoted at $2.50 per 100 lb., Ironton.

Reinforcing Bars.—The market is unusually quiet for this time of the year. Awards have been confined to small tonnages, and there are no projects of consequence on which sellers are bidding. New billet bars continue to bring 2c., Cleveland, and rail steel bars 1.90c., mill.

Warehouse Business.—While sales have been fairly numerous, the tonnage in the aggregate has been light. Structural steel probably is more active than any other product, although unfavorable weather has restricted the demand. Several jobbers are expected to advance common wire nails to $3.05 per keg. f.o.b. local warehouse, during the coming week, but at least one distributer will retain the present price of $2.95. Otherwise, quotations remain the same.

Coke.—Activity has fallen off in the past week, but prices remain unchanged. Steady shipments of foundry coke are reported by local dealers, and there has been moderate demand for by-product domestic grades since the new schedule of quotations went into effect on April 1. Sales of New River and Wise County beehive coke have been restricted to lots ranging from single carloads to 400 tons.

Based on freight rates of $2.14 from Ashland, Ky., $3.53 from Connellsville, and $2.59 from Wise County ovens and New River ovens, we quote f.o.b. Cincinnati: Connellsville foundry, $7.53 to $9.53; Wise County foundry, $7.34 to $7.59; New River foundry, $9.59 to $10.09; by-product foundry, $10.14.

Old Material.—Although mills are taking their contract requirements, they are not placing any fresh business at the moment. With the market quiet in almost all grades of scrap, prices again are sagging and a reduction of 50c. a ton is noted in several items. The Big Four railroad closed a small list, totaling less than 1000 tons the past week.

We quote dealers' buying prices, f.o.b. cars, Cincinnati:

	Per Gross Ton	
Heavy melting steel		$13.00
Scrap rails for melting	$12.50 to	13.00
Short rails	17.50 to	18.00
Relaying rails	27.00 to	27.50
Rails for rolling	14.00 to	14.50
Old car wheels	12.50 to	13.00
No. 1 locomotive tires	16.50 to	17.00
Railroad malleable	16.00 to	16.50
Agricultural malleable	14.50 to	15.00
Loose sheet clippings	8.00 to	8.50
Champion bundled sheets	10.00 to	10.50
Per Net Ton		
Cast iron borings	7.50 to	8.00
Machine shop turnings	7.00 to	7.50
No. 1 machinery cast	17.50 to	18.50
No. 1 railroad cast	14.00 to	14.50
Iron axles	21.00 to	21.50
No. 1 railroad wrought	9.50 to	10.00
Pipes and flues	8.00 to	8.50
No. 1 busheling	9.50 to	10.00
Mixed busheling	8.00 to	8.50
Burnt cast	8.00 to	8.50
Stove plate	9.50 to	10.00
Brake shoes	10.00 to	10.50

Warehouse Prices, F.o.b. Buffalo

	Base per Lb.
Plates and structural shapes	3.40c.
Mild steel bars	3.30c.
Cold-finished shapes	4.45c.
Rounds	3.95c.
No. 28 black sheets	4.60c.
No. 10 blue annealed sheets	3.90c.
No. 28 galvanized sheets	5.75c.
Common wire nails, base per keg	$3.90
Black wire, base per 100 lb	3.90

Buffalo

Steel Mill Output Heavy—Pig Iron Buying Still Slow

BUFFALO, April 6.—Pig iron inquiries in the past week totaled 5000 or 6000 tons. The Westinghouse Electric & Mfg. Co. seeks 700 or 800 tons of foundry for Attica, N. Y., and 2000 tons for Cleveland. The New York Car Wheel Co. is inquiring for 1000 tons and is reported to have bought 300 tons of basic. The Kensington Davis Corporation, Buffalo, which was in the market for 1500 tons, has placed at least a portion of the tonnage. Prices on foundry iron are holding at $21, base furnace, with differentials. Considerable business in 100 and 200-ton lots is being done.

We quote prices per gross ton, f.o.b. Buffalo, as follows:

No. 2 plain fdry., sil. 1.75 to 2.25	$21.00
No. 2X foundry, sil. 2.25 to 2.75	21.50
No. 1X foundry, sil. 2.75 to 3.25	22.50
Malleable, sil. up to 2.25	21.00
Basic	$20.50 to 21.00
Lake Superior charcoal	29.28

Finished Iron and Steel.—Mill bookings are fair, and prices are no weaker. Operations of district mills are between 75 and 85 per cent. Mill prices on soft steel bars are 2.265c., Buffalo; structural shapes range from 2.165c. to 2.265c., and plates are quoted at 2.065c. Sheet prices remain unchanged, with inquiry light. Several bolt contracts for the second quarter have been made on the same basis as for the first. Pipe business is fair, with smaller sizes predominating in the sales. A fair number of structural jobs taking less than 100 tons have been placed, and one school job requires 175 tons.

Old Material.—Railroad malleable is in active demand, with three or four consumers after the available supply, which is not large. In addition, there is demand for this grade from outside the district. As high as $22.50 has been paid. There is quite a demand for borings for blast furnace use, with $13 to $13.50 the going market. Old orders which have been keeping up prices on machine shop turnings have now been filled, and this scrap has weakened, now ranging from $11 to $11.50. There is little activtiy in heavy melting steel. No great tonnage of scrap is being forced out, and it is said that it will take dealers some time to accumulate a stock of heavy melting steel.

We quote prices per gross ton, f.o.b. Buffalo, as follows:

Heavy melting steel	$15.50 to $16.50
Low phosphorus	18.00 to 18.50
No. 1 railroad wrought	14.00 to 14.50
Car wheels	17.00 to 17.50
Machine shop turnings	11.00 to 11.50
Mixed borings and turnings	12.50 to 13.00
Cast iron borings	12.50 to 13.00
No. 1 busheling	14.00 to 14.50
Stove plate	15.00 to 15.25
Grate bars	13.00 to 13.50
Hand-bundled sheets	11.00 to 11.50
Hydraulic compressed	14.50 to 15.00
No. 1 machinery cast	17.00 to 17.50
Railroad malleable	21.00 to 22.00
Iron axles	24.00 to 25.00
Steel axles	16.00 to 16.50

Quiet Week in Detroit Scrap

DETROIT, April 6.—The scrap market has passed through a week of little activity in the way of sales, with old orders absorbing current production. Mills and furnaces seem in no hurry to cover beyond present commitments. Automobile production has been retarded in line with sales, which naturally reacts on automobile production foundries. Prices are unchanged.

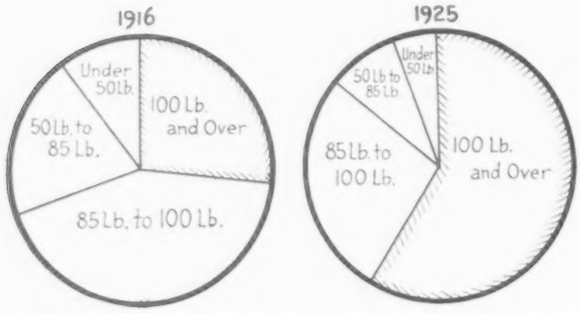
The following prices are quoted on a gross ton basis fo.b. producers' yards, excepting stove plate, No. 1 machinery cast and automobile cast, which are quoted on a net ton basis:

Heavy melting and shoveling steel	$13.50 to $14.00
Borings and short turnings	10.00 to 10.50
Long turnings	8.50 to 9.00
No. 1 machinery cast	17.00 to 18.00
Automobile cast	23.00 to 24.00
Hydraulic compressed	11.75 to 12.25
Stove plate	13.50 to 14.50
No. 1 busheling	11.75 to 12.25
Sheet clippings	7.00 to 7.50
Flashings	10.50 to 11.00

RAIL PRODUCTION LARGER

1925 Furnished Greatest Tonnage Ever Recorded of Rails Over 100-Lb. Per Yard.

PRODUCTION figures compiled by the American Iron and Steel Institute covering steel rails show a 1925 total of 2,785,257 gross tons. Except for 1923 this is the largest output since the war. It compares with an average of 2,422,110 tons during the four preceding years, and with an average of 2,805,286 tons for the first 24 years of the twentieth century. Fourteen of those 24 years exceeded the 1925 output, while 10 were smaller. The maximum tonnage ever recorded was the 3,977,887 tons of 1906.



Although a Larger Tonnage of Steel Rails Was Rolled in 1916 *Than in* 1925, *the* 1925 *Tonnage of 100-Lb. and Over Was More Than Double That of* 1916

With 1,636,631 tons of rails of 100 lb. or over, a new record has been established, displacing the 1,465,850 tons of 1923. In no year previous to 1923 did the tonnage of 100-lb. rails reach 1,000,000. Prior to 1914 there was no sub-division of the total tonnage of more than 85-lb. weight. However, as the output of rails between 85 and 100 lb. consistently exceeded the tonnage of those of more than 100 lb., without exception, for all reported years preceding 1922, it appears certain that none of the earlier years, before the separation was made, could have reached 1,000,000 tons of 100-lb. rails.

While the Bessemer tonnage has been dwindling rapidly, it still is in evidence, for 9687 tons of Bessemer rails were rolled in 1925. One active plant in Pennsylvania and one in Illinois accounted for these. As recently as 1910 the production of Bessemer rails exceeded that of open-hearth rails, and for the years preceding that the Bessemer total was heavily predominant. In 1906, for instance, the tonnage of Bessemer rails rolled was greater than the total tonnage of all rails rolled in any other year in our history.

Alloy-treated steel rails amounted in 1925 to 4009 tons. This is a drop from the 5167 tons of 1924 and is far below the average of the preceding ten years. In 1914, 1915 and 1916 the average tonnage of rails made of alloy-treated steel was 27,156, or nearly seven times the 1925 total. No electric-steel rails have been made since 1923.

Rerolled rails formed the smallest total of the last ten years. There were 97,034 tons rerolled, of which 83,747 tons were rolled from old rails. The average of the nine preceding years was 129,090 tons.

Production of Rails by Processes, Gross Tons, 1910-1925

Years	Open-Hearth	Bessemer	Rerolled*	Electric	Total
1910	1,751,359	1,884,442	†	†	3,636,031(a)
1911	1,676,923	1,053,420	91,751	462	2,822,790(a)
1912	2,105,144	1,099,926	119,390	3,455	3,327,915
1913	2,527,710	817,591	155,043	2,436	3,502,780
1914	1,525,851	323,897	95,169	178	1,945,095
1915	1,775,168	326,952	102,083	.....	2,204,203
1916	2,269,600	440,092	144,826	.....	2,854,518
1917	2,292,197	533,325	118,639	.....	2,944,161
1918	1,945,443	494,193	101,256	.....	2,540,892
1919	1,893,250	214,121	96,422	50	2,203,843
1920	2,334,222	142,899	126,698	297	2,604,116
1921	2,027,215	55,559	96,039	5	2,178,818
1922	2,033,000	22,317	116,459	.....	2,171,776
1923	2,738,779	25,877	139,742	118	2,904,516
1924	2,307,533	16,069	109,730	.....	2,433,332
1925	2,691,823	9,687	83,747	.....	2,785,257

*Rerolled from old steel rails.
†Included with Bessemer and open-hearth steel rails in 1910.
(a) Including respectively 230 tons and 234 tons of iron rails.

Production of Rails by Weight per Yard, 1914-1925

Years	Under 50 Lb.	50 and Less than 85	85 Less than 100	100 Lb. and Over	Total Gross Tons
1914	238,423	309,865	868,104	528,703	1,945,095
1915	254,101	518,291	742,816	688,995	2,204,203
1916	295,535	566,791	1,225,341	766,851	2,854,518
1917	308,258	882,673	989,704	763,526	2,944,161
1918	395,124	665,165	888,141	592,462	2,540,892
1919	263,803	495,577	965,571	478,892	2,203,843
1920	489,043	433,333	952,622	729,118	2,604,116
1921	211,568	214,936	902,748	849,566	2,178,818
1922	265,541	274,731	728,604	902,900	2,171,776
1923	272,794	300,907	864,965	1,465,850	2,904,516
1924	191,046	213,274	853,431	1,175,581	2,433,332
1925	163,607	219,648	765,371	1,636,631	2,785,257

Union Coal Mining Wage Scale Is Moribund

PITTSBURGH, April 5.—The Jacksonville wage scale for soft coal miners, signed in February, 1924, has become meaningless in this district in the past week, when all save one company that signed the agreement suspended operations on the ground that the scale could not be paid and the mines operated profitably in competition with the non-union mines, paying wages about one-third less. The Jacksonville scale has another year to run, but so much non-union coal is available, at prices so much below those that must be obtained to operate the union mines profitably, that its usefulness may be considered at an end.

It is hard to visualize a situation that would bring about prices for soft coal high enough to make possible the operation of mines paying the Jacksonville scale, because the season of light consumption is at hand; little Lake business has come to this district in recent years and a strike of the anthracite miners, which would mean a demand for soft coal, is not likely during the next 12 months.

Just outside the Pittsburgh district in West Virginia and in southern Ohio, where there are mines which have been operated in agreement with the union, there also has been almost complete suspension and for the same reason prevailing here. The Pittsburgh Coal Co., operating mines in the three districts, has succeeded in starting up 10 of them at wages about one-third less than the union scale; this company has more than 50 operations and at one time all of them were idle. A year ago, this company made more money in filling its contracts from purchased non-union coal than it did from its own production.

Production of Trackwork Reported on Monthly Basis

Monthly production of trackwork for T-rail track of 60 lb. and heavier per yard has been reported by the American Iron and Steel Institute for 1925. In previous years the year's total, only, was ascertained. This includes all special or fabricated T-rail trackwork (switches, switch stands, frogs, crossings, guard rails and appurtenances) of carbon steel, manganese steel or other metals, for both domestic and export use.

Aggregate tonnage of such material in 1925 was 170,564 net tons, compared with 152,576 tons in 1924 and 210,762 tons in 1923. Details for 1925 follow:

Net Tons of Trackwork Produced in 1925

January	11,066	July	13,818
February	14,362	August	12,912
March	17,925	September	11,313
First quarter	*43,353*	*Third quarter*	*38,043*
April	16,752	October	12,609
May	17,015	November	12,181
June	17,216	December	13,395
Second quarter	*50,983*	*Fourth quarter*	*38,185*
First half	*94,336*	*Second half*	*76,228*
		Year	*170,564*

FABRICATED STEEL

Awards Close to 40,000 Tons, Including 4500 Tons for New York Subways

A considerable number of structural steel projects, most of which are under 500 tons, make up a week's total of close to 40,000 tons in awards. Included in this is close to 9000 tons in miscellaneous work reported by members of the Structural Steel Board of Trade of New York and 4500 tons for New York subways. A bridge at Bath, Me., will require 7600 tons and a Baltimore department store 7500 tons. Awards follow:

NEW YORK, 8983 tons in the following awards reported by the Structural Steel Board of Trade: New York Evening Post Building, miscellaneous lots and a 20 story loft building, 144-154 West Thirtieth Street, New York, to Hedden Iron Construction Co.; Bronx Municipal Court House, loft building, 315 West Thirty-sixth Street, office building, 537 Fifth Avenue and a 10-story warehouse, 233-245 Spring Street, New York, to Levering & Garrigues Co.; apartment, 820 Park Avenue, New York, hospital, Elizabeth, N. J., Hall of Records, Newark, N. J. (fabrication only), service station, Bridgeport, Conn., warehouse, Scarsdale, N. Y., garage for Anheuser-Busch Ice & Gold Storage Co., Brooklyn, N. Y., and a factory at Middletown, N. Y., to McClintic-Marshall Co.

NEW YORK, 4500 tons, section I, route 102 of new subway, to American Bridge Co.

NEW YORK, 750 tons, apartment building, 950 Fifth Avenue, to Easton Structural Steel Co.

NEW YORK, 500 tons, loft building on Fulton Street, to Paterson Bridge Co.

NEW YORK, 1200 tons, Nurses' Home at Presbyterian Hospital, to Taylor-Fichter Steel Construction Co.

NEW YORK, 1700 tons, loft building on Eighth Avenue, to George A. Just Co.

NEW YORK, 300 tons, greasing racks for Texas Co., to Jones & Laughlin Steel Corporation.

JAMAICA, L. I., 1000 tons, St. Mary's Hospital, to A. E. Norton, Inc.

FAR ROCKAWAY, L. I., 370 tons, stores and offices, to the Owego Bridge & Iron Co.

BOSTON, 300 tons, American Trust Co. addition, to New England Structural Co.

HUDSON, MASS., 470 tons, Firestone Rubber Co. addition, to Eastern Bridge & Structural Co., Worcester.

WATERTOWN, MASS., 125 tons, Hood Rubber Co. addition, to Boston Bridge Works.

WORCESTER, MASS., 212 tons, Mack Motor Co. service station, to Lehigh Structural Steel Co.

CAMDEN, N. J., 650 tons, Cooper River bridge, to Phoenix Bridge Co.

PHILADELPHIA, 300 tons, building No. 9, Sesqui-Centennial Exposition, to Belmont Iron Works.

WESTERN MARYLAND RAILROAD, 600 tons, two bridges, to American Bridge Co.

BUFFALO, 175 tons, Rose of Lima School, to Kellogg Structural Steel Co.

PITTSBURGH, 100 tons, warehouse for Behrhorst & Sons, to Jones & Laughlin Steel Corporation.

CLEVELAND, 2800 tons, department store addition, Halle Bros. Co., to American Bridge Co.

LOUISVILLE & NASHVILLE RAILROAD, 100 tons, turntable, to American Bridge Co.

JACKSON, MICH., 500 tons, high school, to Indiana Bridge Co., Muncie, Ind.

DECATUR, ALA., 350 tons, bridge work, to Mount Vernon Bridge Co.

INDIANAPOLIS, 1100 tons, Indiana War Memorial, to Massillon Bridge & Structural Co.; previous award cancelled.

SCOTTSBURG, IND., 275 tons, highway bridge, to unnamed fabricator.

EVANSTON, ILL., 425 tons, machine shop for National Biscuit Co., to American Bridge Co.

LOMAN, MINN., 185 tons, State bridges, to Minneapolis Bridge Co.

DES MOINES, IOWA, 630 tons, factory buildings for Wood Brothers Thresher Co., to Truscon Steel Co.

BROOKINGS, S. DAK., 170 tons, library for State College of Agriculture, to Crown Iron Works Co., Minneapolis.

ST. LOUIS, United States Engineers, 360 tons, 20 river barges, to Dravo Contracting Co.

SAN FRANCISCO, 265 tons, apartment, Mason Street, to Central Iron Works.

MARYSVILLE, CAL., 160 tons, theater, to Schrader Iron Works, San Francisco.

CHICO, CAL., 160 tons, theater, to Schrader Iron Works.

THE DALLES, ORE., 500 tons, pipe line, to King Brothers Boiler Works, Portland.

TACOMA, WASH., 180 tons, pipe line, to Birchfield Boiler Co., Tacoma.

LOS ANGELES, 600 tons, two 80,000-bbl. tanks for Wilshire Oil Co., to Llewellyn Iron Works.

Structural Projects Pending

Inquiries for fabricated steel work include the following:

NEW YORK, 500 tons, Three Arts Club on West Eighty-fifth Street.

HOLLIS, L. I., 300 tons, public school.

ALBANY, N. Y., 300 tons, building for the International Harvester Co.

ROCKY RIFT, N. Y., 300 tons, movable dam for State of New York.

OSWEGO, N. Y., 180 tons, Fitzgibbon Boiler Co., plant extension.

BATH, ME., 7600 tons, railroad and highway bridge.

BOSTON, 1100 tons, Boston Consolidated Gas Co. office building.

BOSTON, 130 tons, Hotel Commodore addition.

QUINCY, MASS., 115 tons, Masonic Temple.

NEW BRITAIN, CONN., 250 tons, building for Landers, Frary & Clark.

PHILADELPHIA, 300 tons, city pumping station.

BALTIMORE, 7500 tons, department store for Hochschild, Kohn & Co.

WASHINGTON, 500 tons, extension to power station of the Potomac Electric Power Co.

ERIE, PA., 300 tons, tunnel for New York Central Railroad.

BATON ROUGE, LA., 1000 tons, 7 oil tanks for Standard Oil Co.

CINCINNATI, 250 tons, fertilizer plant for Armour Chemical Co.; bids opened.

DAYTON, OHIO, 175 tons, building for White Baking Co.; bids in.

CLEVELAND, 150 tons, engineering building for Case School of Applied Science.

SAN FRANCISCO, 575 tons, Kress Building.

RAILROAD EQUIPMENT

Pennsylvania Railroad Buys 200 Locomotives and May Buy Cars Next Week

Aside from the buying of 200 locomotives by the Pennsylvania Railroad, the amount of railroad purchasing of equipment is small. Orders of three roads total only 500 cars and 300 are being inquired for.

During the first two months of this year Class 1 railroads installed in service 12,817 freight cars, compared with 28,120 installed during the corresponding period in 1925. Freight cars on order on March 1 totaled 50,947, including 22,140 box cars, 19,753 coal cars and 6627 refrigerator cars.

Class 1 railroads installed 366 locomotives in service during the first two months of the year, compared with 292 installed during the same period last year.

The principal equipment items of the week follow:

The Pere Marquette has placed 350 automobile cars with the National Steel Car Corporation, Hamilton, Ont.

The Baltimore & Ohio has contracted for 100 caboose underframes with the Pressed Steel Car Co.

The New York Central has placed 10 motor passenger cars with the Standard Steel Car Co.

The Birmingham Southern has placed 100 gondola cars with the Tennessee Coal, Iron & Railroad Co.

The Reading is in the market for 25 baggage and 5 combination cars.

The Pennsylvania Railroad has ordered 200 locomotives, 175 from the Baldwin Locomotive Works and 25 from the Lima Locomotive Works. It is understood also that the railroad company will build an additional 100 engines in its own shops. Action on upward of 2000 freight and passenger cars has been deferred until next week.

The Southern Railway is in the market for 500 sets of flatcar underframes.

The Seaboard Air Line has ordered 50 caboose cars and six passenger-baggage cars from the American Car & Foundry Co.

The Alton & Southern Railroad has purchased 1 Mikado type locomotive from the American Locomotive Co.

The Texas & Pacific is in the market for 300 automobile cars.

REINFORCING STEEL

Awards of 5450 Tons, Including One Job of 1800 Tons—Bridge to Take 1000 Tons

Of 5450 tons of concrete reinforcing bars awarded in various jobs during the week, the largest was 1800 tons for an extension of the Bush Terminal warehouses in Brooklyn. A projected bridge across the Hudson River at Poughkeepsie will take 1000 tons. Awards follow:

NEW YORK, 650 tons, Clason Point sewer; awarded by Spadaro Contracting Co. to Kalman Steel Co.

NEW YORK, 380 tons, plant, Andrea Holding Corporation; awarded by White Construction Co., Inc., to Kalman Steel Co.

NEW YORK, 130 tons, subway, route 102, section 2; awarded by George H. Flinn to McClintic-Marshall Co.

NEW YORK, 100 tons, bridge, Bronx Park; awarded by Fox Reynolds Co. to a local jobber.

NEW YORK, 100 tons, theater, Eighty-sixth Street and Broadway, to Igoe Brothers.

WESTCHESTER COUNTY, N. Y., 100 tons, Tibbets Brook Park swimming pool, to Igoe Brothers.

BROOKLYN, 1800 tons, Bush Terminal extension, to J. K. Larkin & Co.

JAMAICA, L. I., 100 tons, Mary Immaculate Hospital; awarded by Thomas O'Reilly & Son, Inc., to Kalman Steel Co.

NEWARK, 150 tons, Hall of Records, to Igoe Brothers.

IRVINGTON, N. J., 100 tons, Arrow Silk Hosiery Co. mill, to Igoe Brothers.

SCRANTON, PA., 150 tons, Y. W. C. A. building, to Bittenbender Co., Scranton.

FRANKLIN, PA., 100 tons, State highway bridge, to Kalman Steel Co.

CHICAGO, 350 tons rail steel, National Tea Co. warehouse, to Calumet Steel Co.

CHICAGO, 718 tons, Roosevelt High School, to American System of Reinforcing.

ST. PAUL, MINN., 150 tons for the Great Northern Railroad, to Wisconsin Steel Co.

ZENITH, WASH., 220 tons, Masonic Home, to Pacific Coast Steel Co.

SAN FRANCISCO, 250 tons, retaining wall, to Badt-Falk & Co.

Reinforcing Bars Pending

Inquiries for reinforcing steel bars include the following:

CHICAGO, 350 tons, St. Vincents Academy.

CHICAGO, 140 tons, St. James Hospital; H. J. Gaul, architect.

CHICAGO, 360 tons, LaSalle Street bridge footings; Central Dredge Co. low bidder.

POUGHKEEPSIE, N. Y., 1000 tons, Mid-Hudson River bridge; Philipsburgh Construction Co., Yonkers, N. Y., low bidder.

More American Machinery Going to Czechoslovakia, East Indies and China

WASHINGTON, April 3.—The United States furnished 15 per cent and Germany 71 per cent of the metal-working machinery imported into Czechoslovakia during 1925, according to the industrial machinery division, Department of Commerce. The value was $1,934,000. The American percentage was double that of 1924, while the German percentage showed a slight decline.

Machinery imports through Shanghai, China, totaled approximately $5,916,000 in 1925, of which total the United States supplied 25 per cent, or approximately $1,500,000. American imports into Shanghai were exceeded only by those of Great Britain, which furnished $2,250,600, constituting 38 per cent of the total. Japan was the third largest source of machinery, with imports valued at $690,200, while Germany held fourth place with imports of $547,400. The largest machinery item from the United States was textile machinery, $327,782.

Striking growth has been shown in American industrial machinery exports to the Dutch East Indies. Last year the United States sold over $2,000,000 worth of industrial machinery to the Dutch colony. This was half again as much as was sold in 1924 and three times the total American sales in 1923. This creditable showing is attributed to the superiority of special machinery products, such as oil well and pumping machinery. These two items made up about 75 per cent of the total. It is said that there is considerable room for further expansion in this market.

Milwaukee and St. Louis Made Grouping Points Under J. & L. Scale

WASHINGTON, April 6.—Milwaukee and St. Louis are made grouping points on iron and steel products under the Jones & Laughlin mileage scale by an order announced today by the Interstate Commerce Commission. It was made in compliance with a request of railroads in Illinois Freight Association territory to add Milwaukee and St. Louis to the points of grouping under the Jones & Laughlin decision, which originally confined grouping points to Pittsburgh and Chicago.

The commission in the same order also granted so-called fourth section relief to the railroads in Illinois Freight Association territory, as it did last week to railroads in Central Freight Association territory. This provides for application throughout both territories of departures from the long-and-short haul provision over the most circuitous routes, effective Nov. 1. Another order today also extends the time for the fourth section relief in all cases to Nov. 1 instead of to May 29, when the Jones & Laughlin mileage scale is to be made effective.

Los Angeles Steel Week

LOS ANGELES, March 29.—The second annual celebration of Los Angeles Steel Week began on Monday, March 29, with the arrival here of Charles F. Abbott and Lee H. Miller, secretary and chief engineer, respectively, of the American Institute of Steel Construction. The visitors were met by a local reception committee, consisting of H. G. Miller, president Union Iron Works; Benjamin Harwood, vice-president Llewellyn Iron Works, and Guy Boynton, treasurer Baker Iron Works. The official program for the week was completed on Friday, March 26, at a meeting of the Los Angeles officials of the California Institute of Steel Construction, presided over by Robert P. Miller, vice-president Union Iron Works and chairman of the local steel organization.

Mr. Abbott will be the principal speaker Thursday noon before the Joint Technical Societies of Southern California. He also will address the engineering students at the California Institute of Technology in the afternoon, and an engineering class at the C. W. Cook Engineering School in the evening. The visitors are scheduled to leave early Friday for San Francisco.

British Iron and Steel Foreign Trade in February

Exports of iron and steel from Great Britain in February at 312,674 gross tons were less than the January exports of 345,691 tons. Deducting scrap the February total was 298,736 tons or less than the corresponding average for 1925 of 310,900 tons per month. The February data compared with previous years are as follows:

Exports of Leading British Steel Products in Thousands of Gross Tons Per Month

	Feb., 1926	Jan., 1926	1925	1913
Pig iron and ferroalloys	52.8	49.2	46.6	93.7
Iron bars, rods and shapes	2.8	2.6	3.1	11.8
Steel bars, rods and shapes	22.5	20.4	19.8	20.9
Hoops and strips	4.9	3.3	5.1	3.8
Plates and sheets	9.8	8.4	9.9	11.2
Black plates and sheets	15.2	27.3	19.5	11.7
Galvanized sheets	64.3	68.2	59.4	63.5
Tin plates and sheets	30.9	40.0	42.6	41.2
Rails	12.9	23.8	17.3	42.2
Cast tubes, pipes and fittings	8.0	11.3	7.8	19.6
Wrought tubes, pipes and fittings	17.5	19.4	16.0	13.7
Wire and manufactures	11.1	9.6	9.8	9.6
Total of all exports (except scrap)	298.7	336.7	310.9	414.1

Imports at 244,678 tons (228,824 tons, aside from scrap) were larger than the average for 1925 of 234,900 tons per month (226,750 tons, aside from scrap).

NON-FERROUS METALS

The Week's Prices

Cents per Pound for Early Delivery

	Copper, New York		Straits Tin (Spot)	Lead		Zinc	
March	Lake	Electrolytic*	New York	New York	St. Louis	New York	St. Louis
31.....	14.12½	13.70	63.25	8.30	8.00	7.45	7.10
April							
1.....	14.00	13.62½	64.00	8.25	8.00	7.45	7.10
2.....	14.00	13.70	64.00	8.25	8.00	7.47½	7.12½
3.....	14.12½	13.75	....	8.25	8.00	7.55	7.20
5.....	14.12½	13.75	64.00	8.25	8.00	7.55	7.20
6.....	14.12½	13.75	63.75	8.25	8.00	7.55	7.20

*Refinery quotation; delivered price ¼c. higher.

New York

NEW YORK, April 6.

The Easter holidays in London, with the markets closed from Friday to Monday, inclusive, as well as the partial holiday here on Friday, April 2, have interfered with the normal course of all the markets. There has been very little change in prices, which have been firm.

Copper.—The week in electrolytic copper had been unusually quiet until yesterday and today, when buying on a moderate scale was reported by at least one or two producers. The market has grown a little stronger since a week ago, electrolytic copper being quoted at 14c., delivered, from practically all sources. Sales in the past week have been made at 13.90c. to 14c., delivered, with the minimum today at the latter figure. There is almost no export business being consummated just at present, due possibly to the preparations for the functioning for the new export association. Most of the 8,000,000 lb., referred to in this market a week ago as ready to be bought, has been purchased and domestic consumers report active operations and good prospects. A representative of one of the large producers, who has just returned from a trip to Detroit and the Middle West, reports consuming conditions to be considerably better than had been anticipated, with practically no adverse effect so far from the drastic declines in the New York stock market. A large brass company reports sales of 67,000,000 lb. in March, a new record month, and a large copper producer states that its sales in March were larger than its output. The statistics for March, to be issued very soon, are expected to be in producers' favor. Lake copper is quoted at 14.12½c., delivered.

Copper Averages.—The average price of Lake copper for the month of March, based on daily quotations in THE IRON AGE, was 14.25c., delivered. The average price of electrolytic copper was 13.86c., refinery, or 14.11c., delivered.

Tin.—Owing to the holidays, particularly in London, sales here have been lighter than in many weeks. One estimate of the total for the week ended with April 2 is 700 to 800 tons. Consumers are evidently comfortably covered for April and May, but not so well for June. There is a good demand for spot and nearby deliveries from those who are accustomed to take nothing else. The market Friday, Saturday and Monday has been stagnant with practically no activity today. Spot Straits tin was quoted today at 63.75c., New York. The London market opened today inactive after the three-day holiday and was evidently awaiting news from the New York market, which also was attempting to feel the pulse of the London market. Quotations over there today were about £4 to £6 higher than a week ago, with spot standard quoted at £286 15s., future standard at £277 15s. and spot Straits at £289 5s. The Singapore market today was £280 15s. The statistics for March showed deliveries into consumption of 6835 tons with 2495 tons in stock and landing on March 31. There was a decline of the world's visible supply as of March 31 of 1959 tons, bringing the total visible supply of the world at 14,280 tons, as compared with 16,239 tons at the end of February.

Old Metals.—Business is fair. Dealers' selling prices are as follows:

	Per Lb.
Copper, heavy and crucible	13.50c.
Copper, heavy and wire	12.75c.
Copper, light and bottoms	11.25c.
Heavy machine composition	10.00c.
Brass, heavy	9.25c.
Brass, light	7.75c.
No. 1 red brass or composition turnings	9.00c.
No. 1 yellow rod brass turnings	9.00c.
Lead, heavy	7.25c.
Lead, tea	6.25c.
Zinc	5.00c.
Cast aluminum	19.50c.
Sheet aluminum	19.50c.

Lead.—Underlying conditions are somewhat contradictory. Some sellers report good inquiry and business, while others state that it is lighter in volume, with a few holding for full prices or 8.35c., New York, but other sellers are selling at 8.25c., New York, and it is probable that some interests outside of the leading producer have taken business at 8.20c., New York, which is still the price of that interest. We quote the market at 8c., St. Louis, or 8.25c. to 8.35c., New York.

Zinc.—There are no features but the market is fairly steady and firm. There has been a light business done in prime Western and the market is quotable at 7.20c., St. Louis, or 7.55c., New York. There is practically no pressure to sell and the comparatively low operating

Metal Prices, f.o.b. New York Warehouse

	Per Lb.
Tin, Straits pig	66.00c. to 66.75c.
Tin, bar	69.25c. to 69.75c.
Copper, Lake	15.50c.
Copper, electrolytic	15.25c.
Copper, casting	15.00c.
Zinc, slab	8.75c. to 9.25c.
Lead, American pig	9.00c. to 10.00c.
Lead, bar	11.25c. to 12.25c.
Antimony, Asiatic	23.00c. to 24.00c.
Aluminum, No. 1 ingots for remelting (guaranteed over 99 per cent pure)	30.00c. to 30.50c.
Babbitt metal, commercial grade	30.00c. to 35.00c.
Solder, ½ and ½ guaranteed	41.00c.

Rolled Metal Prices, f.o.b. New York Warehouse

	Base per Lb.
Sheets—	
High brass	18⅞c. to 19⅞c.
Copper, hot rolled	22½c. to 23½c.
Copper, cold rolled, 14 oz. and heavier, 3c. per lb. advance over hot rolled.	
Zinc (No. 9), casks, 13.25c.; open	13.75c.
Seamless Tubes—	
Brass	23½c. to 24½c.
Copper	24¼c. to 25¼c.
Brazed Brass Tubes	26⅞c. to 27⅞c.
Brass Rods	16⅝c. to 17⅝c.

Non-Ferrous Rolled Products

Mill prices on brass, bronze and copper products are unchanged since the reductions of ¼c. per lb. on March 26. Zinc and lead sheets remain unchanged after the reductions of two weeks ago.

List Prices Per Lb., f.o.b. Mill

On Copper and Brass Products, Freight Up to 75c. Per 100 Lb. Allowed on Shipments of 500 Lb. or Over

Sheets	
High brass	18.87½c.
Copper, hot rolled	22.50c.
Zinc	11.75c.
Lead (full sheets)	11.75c.
Seamless Tubes	
High brass	23.50c.
Copper	24.25c.
Rods	
High brass	16.62½c.
Naval brass	19.37½c.
Wire	
Copper	16.00c.
High brass	19.37½c.
Copper in Rolls	21.37½c.
Brazed Brass Tubing	26.87½c.

Aluminum Products in Ton Lots

The carload freight rate is allowed to destinations east of the Mississippi River and also allowed to St. Louis on shipments to destinations west of that river.

Sheets, 0 to 10 gage, 3 to 30 in. wide	37.50c.
Tubes, base	48.00c.
Machine rods	34.00c.

rate of galvanizers has not caused much demand. A favorable factor has been lower ore prices in the last month.

Nickel.—Ingot nickel in wholesale lots is quoted at 35c., with shot nickel at 36c. and electrolytic nickel at 39c.

Antimony.—Chinese metal for spot and early delivery, in the absence of active demand, is lower at 18c., New York, duty paid, with futures at 15c. and higher, depending on the position.

Aluminum.—Virgin metal, 98 to 99 per cent pure, is obtainable as ingots at 27c. to 28c. per lb., delivered.

Old Metals, f.o.b. New York

Business is more active and values firm. Dealers' buying prices are as follows:

	Per Lb.
Copper, heavy crucible	12.00c.
Copper, heavy and wire	11.75c.
Copper, light bottoms	9.50c.
Brass, heavy	7.00c.
Brass, light	6.25c.
Heavy machine composition	8.75c.
No. 1 yellow brass turnings	8.25c.
No. 1 red brass or composition turnings	8.00c.
Lead, heavy	6.75c.
Lead, tea	5.25c.
Zinc	4.25c.
Cast aluminum	18.00c.
Sheet aluminum	18.00c.

Chicago

APRIL 6.—Copper and zinc tend to become firmer in a fairly active market. The demand for tin has improved slightly and the price has fluctuated within narrow limits. The lead market is quiet at unchanged prices, while antimony is weak in a dull market. There is no improvement in the demand for old metals. We quote, in carload lots: Lake copper, 14.25c.; tin, 65c.; lead, 8.20c.; zinc, 7.30c.; in less than carload lots, antimony, 20.50c. On old metals we quote copper wire, crucible shapes and copper clips, 10.25c.; copper bottoms, 9.25c.; red brass, 9c.; yellow brass, 8c.; lead pipe, 6.50c.; zinc, 5c.; pewter, No. 1, 37c.; tin foil, 44c.; block tin, 52c.; aluminum, 19.50c.; all being dealers' prices for less than carload lots.

Brass Shipments Gain 12 Per Cent

"The shipments to customers by the American Brass Co. during the first quarter of this year were 12½ per cent over the same period last year and orders and contracts on the books at the end of the quarter were 13 per cent over the same date last year," said John D. Ryan, chairman of the board Anaconda Copper Co., New York, in a recent statement.

"As 1925 was the greatest year in the company's history in the matter of shipments and orders taken, the present state of the business does not indicate business or industrial recession, and we are looking for a very good year. March was the largest month and the largest quarter in shipments in the company's history."

More Workers at Higher Pay

Employment and payroll figures in the iron and steel industry, gathered by the Bureau of Labor Statistics from 213 identical establishments, show a gain in February, both in the number employed and in the average weekly payroll. The February total for the 213 plants was 284,277 on the payroll, an increase of 1.5 per cent over the 279,979 in January. One week's payroll in February aggregated $8,725,035, a gain of 2.9 per cent over the $8,478,171 for a corresponding week in January. The average pay envelope advanced 1.4 per cent.

Census Bureau estimates place the United States population, on July 1 next, at 117,135,817, exclusive of outlying territory. This is an increase since Jan. 1, 1920, of 11,425,197. The figure is arrived at from a consideration of excess of births over deaths and excess of immigration over emigration.

Westinghouse Personnel Changes

E. H. Sniffin, formerly manager of the power department of Westinghouse Electric & Mfg. Co., East Pittsburgh, as of April 2, became assistant to the vice-president. In addition to the promotion of Mr. Sniffin, complete reorganization of the sales department, involving the reallocation of the managing personnel and the creation of several new activities, was announced by E. D. Kilburn, vice-president and general sales manager. The changes: Director of sales, T. J. Pace, formerly manager supply department; central station manager, G. H. Froebel, formerly manager marine department; industrial sales manager, J. M. Curtin, formerly manager industrial department; transportation sales manager, M. B. Lambert, formerly manager railroad department; assistant director of sales, A. C. Streamer, formerly assistant to manager, supply department; generating apparatus manager, H. W. Smith, formerly general engineer; traction apparatus manager, A. J. Manson, formerly manager heavy traction division, railroad department; motor apparatus manager, O. F. Stroman, formerly assistant to manager, industrial department; switchgear apparatus manager, R. A. Neal, formerly head of switch section, supply department, and distribution apparatus manager; G. A. Sawin, formerly assistant to manager, supply department.

Heavy Production in Mahoning Valley

YOUNGSTOWN, April 6.—The operating performance of the iron and steel industry in the Mahoning and Shenango Valleys, as recounted from week to week in production schedules, indicates betterment for the current period in pig iron, steel tube and plate output, and irregularity in steel sheets, strips, skelp and merchant steel bars.

The Youngstown Sheet & Tube Co. reports considerable activity in foundry iron in the Chicago district, where it is the principal merchant producer. The company has started its second stack at Mayville, Wis., and has placed in blast B furnace in its East Youngstown group, following rebuilding. With these resumptions, the company is now operating 12 of its 17 blast furnaces, including six of eight in the Chicago district and six of nine in the Youngstown territory.

One of its two new stacks at Indiana Harbor, Ind., established a new production record in March, turning out a per diem average of 790 tons of iron, on all iron ore. With the resumption above noted, and the lighting of Claire blast furnace in the Shenango Valley, there are now 27 active blast furnaces in the Youngstown district, embracing the Mahoning and Shenango Valleys, out of a total of 42. The active stacks represent 74 per cent of total rated capacity.

For the first time this year, the Newton Steel Co. this week cut the number of its active hot mills at Newton Falls, Trumbull County, to 16, of 20. Heretofore, the company has operated all of its 20 mills, without deviation.

Shipments of finished steel during the first quarter by the Trumbull Steel Co., Warren, reached 120,612 tons, establishing a new record for a three-months' period. Shipments by months were: March, 40,857 tons; February, 36,564 tons and January, 43,191 tons. President John T. Harrington states that current business is coming through at a better rate than in March.

Independent steel ingot production averages 80 per cent, with the Steel Corporation operating its ingot capacity close to 100 per cent. Strip and bar mills at Youngstown are averaging 80 per cent. Of 127 sheet mills in the Valley, 109 are scheduled.

In March, production records were established by the plate mill department of the Sheet & Tube company and by its Western Reserve sheet mill plant at Warren. McDonald bar mills of the Carnegie Steel Co. turned out more gross tonnage last month than ever before, as did the Carnegie company's 19 bar mills in the Youngstown area. The company's open-hearth and total steel ingot output at the Ohio works set up a new record in March, as did the production of the 40-in. mill.

PERSONAL

Warren D. Blatz, general sales manager, and Walter R. Clark, general works manager, have been appointed to the board of directors of the Bridgeport Brass Co. The selection of the two men as directors is in recognition of their ability and rapid rise in the ranks of chief executives of the firm. Mr. Blatz was graduated from the Boardman Manual Training High School in

WALTER R. CLARK

WARREN D. BLATZ

New Haven in 1901. In 1905 he joined the T. L. Watson Co., Bridgeport, as junior clerk, with a salary of $6 a week. He remained there for 12 years, leaving 1916 to join the sales department of the Bridgeport Brass Co., at which time Guy P. Miller was general manager. He has worked on practically every desk job in the sales department and five years ago was made sales manager of the mill products division. About three years ago he was made general sales manager. Walter R. Clark was graduated from Yale University (Sheffield Scientific School) with the class of 1899. In 1900 he started as a draftsman with the Bridgeport Brass Co. He soon rose to be head draftsman and later was made chief engineer, which position he held until 1919, when the duties of works manager in the mill products division were added to his other duties. During this period the company expanded from a small size to its present place in the industry. Under his supervision the Housatonic plant was built. In 1921 he was made general works manager in charge of both divisions, which position he holds today.

—

F. H. Burnett, formerly assistant to the general manager of the Lackawanna Plant, Bethlehem Steel Co., Lackawanna, N. Y., has been appointed claim agent for the company, with headquarters in the general offices at Bethlehem, Pa.

—

A. T. Gardiner has resigned as general manager American Swiss Magneto Co., Toledo, Ohio. He is well known to the automobile and allied industries trade. He has not yet announced his new connection.

—

Samuel Muir, formerly assistant superintendent open-hearth department of the Donner Steel Co., Buffalo, succeeded Kent Harrison as open-hearth superintendent on March 1. Mr. Harrison's resignation was noted in these columns on Jan. 21.

—

William W. Earle, superintendent Woodward & Powell Planer Co., Worcester, Mass., has been elected vice-president and secretary of the corporation, to fill vacancies caused by the recent death of John W. Robinson. He has been at the head of the manufacturing end of the business for a number of years. Edward M. Woodward, Jr., is president and treasurer.

Dr. Rudolf Goernandt, manager of an association of German metal-ware manufacturers, the Reichsbund der Deutscher Metallwaren-Industrie, 53 Lutherstrasse, Berlin W 62, Germany, is spending a few weeks in this country.

—

W. Mickelson has been appointed Wisconsin representative for Stocker-Rumely-Wachs Co., 117 North Jefferson Street, Chicago, dealer in machine tools. Mr. Mickelson was formerly associated with the Oilgear Co., Milwaukee, and with the Kearney & Trecker Corporation, Milwaukee.

—

P. A. Geier, president P. A. Geier Co., Cleveland, was elected president of the Cleveland branch of the National Metal Trades Association, at its recent annual meeting. Mr. Geier, formerly vice-president, had been acting president for several months, filling a vacancy caused by the death of A. W. Foote. John H. Hertner, president Hertner Electric Co., was elected vice-president and J. D. Cox, Jr., was reelected treasurer. C. J. Snow of the Bruce-Macbeth Engine Co. was elected a director. Directors reelected were Franklin Schneider, Van Dorn Electric Tool Co.; Chester Sayle, Cleveland Punch & Shear Works Co., and James W. Campbell, president and treasurer Cleveland Wire Spring Co.

—

John A. Harvin, after 31 years' continuous service, has been relieved of the duties of general manager of Peden Iron & Steel Co., Houston, Tex. He continues as a director and vice-president of the company, as general adviser to the officers and continues his supervision of purchases and purchase contracts, will visit the branch houses and maintain that close relationship which has been so profitable throughout the years.

—

Charles C. Phelps, secretary and sales manager Uehling Instrument Co., Paterson, N. J., has completed a ten weeks' trip visiting all of the company's Southern representatives as well as several in the Middle West. Most of this time was devoted to actual field work with the idea of better fitting the representatives to cooperate with users of CO_2 recorders and fuel waste meters. Mr. Phelps made a special study of the application of these instruments in oil refineries.

—

Joseph R. Camm, who has been connected with the machinery sales department of the Cleveland Tool & Supply Co., Cleveland, has been appointed manager of the Detroit sales office of the National Tool Co., Cleveland, with an office at room 5-116 General Motors Building.

—

George S. Humphrey, West Penn Power Co., was elected chairman of the newly formed electrical section of the Engineers' Society of Western Pennsylvania at the organization meeting in the William Penn Hotel, March 31. W. C. Goodwin, Westinghouse Electric & Mfg. Co., was named vice-chairman. The executive committee named is composed of M. E. Skinner, Duquesne Light Co.; D. M. Simons, Standard Underground Cable Co.; Andrew Pinkerton, American Sheet & Tin Plate Co.; J. M. Malady, Hillman Coal & Coke Co., and R. L. Rapp, General Electric Co.

—

Alexander Harper has been reelected president Bristol Brass Corporation, Bristol, Conn., and J. R. Holley, vice-president.

—

Lewis A. Hastings, Heald Machine Co., Worcester, Mass., has been made chairman of the publicity and attendance committee of the Advertising Club of Worcester for the 1926 convention of the New England Advertising Clubs in that city next November.

—

W. B. McBurney has been appointed by the Uehling Instrument Co., Paterson, N. J., as representative for Georgia and eastern Tennessee, in connection with CO_2 recorders and indicators, fuel waste meters and combined barometer and vacuum recorders. His office will be at 619 Trust Co. of Georgia Building, Atlanta.

—

George E. Barker, sales manager Co-Operative Foundry Co., Rochester, N. Y., has resigned to become

connected with the Williamson Heater Co., Cincinnati. John J. Culligan, who was advertising manager of the Co-Operative Foundry Co., will join the sales organization of the Williamson Heater Co., also.

—

George H. Smith, formerly with the American Car & Foundry Co., Chicago, has been made plant engineer of the Southwark Foundry & Machine Co., Philadelphia.

—

J. Carlton Ward, Jr., Hartford, Conn., formerly assistant general manager Pratt & Whitney Co., has been appointed vice-president and general manager Hartford Machine Screw Co.

—

A. H. Ellison has been appointed district representative in the New York territory for the Milwaukee Electric Crane & Mfg. Corporation, with offices at 50 Church Street. Mr. Ellison is widely experienced in crane and hoist equipment, gained with other crane and material handling equipment manufacturers.

—

H. S. Vance has been appointed vice-president in charge of manufacturing of the Studebaker Corporation, succeeding M. F. Wollering, who has resigned after 17 years' service.

George Kurtz has been appointed purchasing agent Columbia Steel Co., with headquarters in the company's general offices, Standard Life Building, Pittsburgh. He was formerly assistant purchasing agent United Alloy Steel Corporation, Canton, Ohio.

—

Thomas A. Peebles, chief engineer Hagan Corporation, Pittsburgh, presented a paper, "Automatic Control of Combustion," at the regular bi-monthly meeting of the Pittsburgh section of the American Society of Mechanical Engineers and the mechanical section of the Engineers' Society of Western Pennsylvania, at the William Penn Hotel, Pittsburgh, Wednesday evening, April 7.

—

Byron B. Evans, formerly Pittsburgh district representative for the Milwaukee Electric Crane & Mfg. Corporation, Milwaukee, has been appointed Chicago district representative for that company, with offices at 11 South La Salle Street. He succeeds Page & Ludwick in that capacity. Mr. Evans formerly was interested in the perforated metal business, and for a number of years was associated with the mining department of the Allis-Chalmers Mfg. Co., Milwaukee.

OBITUARY

CARLYLE F. BARNES, president Wallace Barnes Co., spring manufacturer, Bristol, Conn., died suddenly April 4 in San Diego, Cal., in his seventy-third year.

CARLYLE F. BARNES

Mr. Barnes retired from active management of the company about seven years ago, turning the business over to his two sons, but retained the office of president and director of the Associated Spring Corporation, New York, holding company for the concern's varied interests. The Wallace Barnes Co., organized by his father, Wallace Barnes, has plants in Bristol and Forestville, Conn., while the Associated Spring Corporation has plants also at Hamilton, Ont., Chicago, Detroit and Corry, Pa. Mr. Barnes was born in Bristol on Dec. 11, 1852, and was graduated from Williston Seminary in 1870. After three years' experience as a clerk with Cheney Brothers, silk manufacturers, South Manchester, Conn., he went to his father's company as treasurer, becoming president upon his father's death in 1893. Among his other interests was the Dunbar Brothers Co., Hartford, Conn., of which he was president, and the C. J. Root Co., also of Hartford, of which he was a director.

—

AUGUST THYSSEN, an outstanding figure in the German industrial world for some years, died April 4 at the age of 85 years. He was born in May, 1840, at Eschweiler, Rhineland, Germany. He founded the firm of Thyssen & Co. at Mulheim-am-Ruhr in 1871. In 1890 the firm started blast furnaces at Hamborn and added an open-hearth plant and rolling mill, the first year's output of which was 50,000 tons. In 1896 a Bessemer basic steel plant was added. Before 1914 he had a yearly output of nearly 1,000,000 tons of steel and employed 50,000 men. This included a large plant in Lorraine, now in French hands. His eldest son, Fritz, born in 1873, now manages the concern's wide ramifications.

—

S. P. EGAN, vice-president and general manager J. A. Fay & Egan Co., Cincinnati, manufacturer of woodworking machinery, died of pneumonia in that city on March 30. He sustained a serious injury in January on a business trip to Toronto, and had been confined to his home as a consequence. In his weakened condition he contracted a heavy cold which developed into pneumonia and caused his death. He was born in Hamilton, Ontario, in 1860, obtained his education in the public schools and became a mechanical draftsman. Later he entered the office of the Grand Trunk Railroad, rising to the position of chief clerk. When 26 years of age he moved to Cincinnati to become associated with the firm of which the late T. P. Egan, a relative of his father, was the head. Subsequently the business was merged and became the J. A. Fay & Egan Co.

—

FRANK ESHLEMAN BACHMAN, formerly general manager Northern Iron Co., Port Henry, N. Y., died of pneumonia on April 1. Mr. Bachman was born in Stroudsburg, Pa., Dec. 9, 1858. He was a member of the class of 1880 in Lafayette College, specializing in chemistry. His blast furnace experience began at Middletown, Pa. In 1889 he went to Ensley, Ala., and later superintended the building of a blast furnace in Salem, Va. He was blast furnace superintendent for the M. A. Hanna Co., at Buffalo, and went to Port Henry as general manager in 1902. The Northern Iron Co. then was lessee of the Witherbee-Sherman blast furnace at that point. He retired from active business in 1910.

FRANK E. BACHMAN

—

HARRY E. WITHAM, for many years district sales manager in Chicago for the Warner & Swasey Co., Cleveland, manufacturer of turret lathes, and later with the Kearney & Trecker Corporation, Milwaukee, as Chicago sales manager, and the Foster Machine Co., Elkhart, Ind., died March 15 in Denver, Colo. He had retired from active business about a year ago.

—

CHARLES L. SMITH, for some years editorial representative of THE IRON AGE in Cincinnati, and prior to that time identified with the New York office of THE IRON AGE, died in El Paso, Tex., March 22. He had been in business in El Paso for a number of years.

European Steel Prices Show Weakness

German Mills Quote Low for Export—Easter Holidays Depress British Market—Japan Tests German Open-Hearth Sheets

(By Cable)

LONDON, ENGLAND, April 6.

THE markets are dull following the holidays and sellers are not inclined to book much forward business because of the uncertainty of the coal situation. Cleveland pig iron producers continue busy with output limited and prices maintained by control, but other grades of iron are weak. Foreign ore is still dull and Bilbao Rubio is nominally 21s. 3d. to 21s. 6d. c.i.f. Tees.

Finished steel is quiet and consumers are opposed to revival of price control on plates and shapes. Some departments are busy, while others are prolonging the holiday period. Inquiries from India for railroad material are increasing. Continental markets are quiet. Clyde shipbuilding output in March consisted of 14 vessels launched, of a total of 33,390 gross register tons.

Tin plate is steady and quiet, but revival of demand is anticipated in the near future. Galvanized sheets are steady with a fair business in No. 24 gage corrugated in bundles at £15 12s. 6d. f.o.b. Black sheets are dull.

German Iron and Steel Prices Unchanged for April—Export Prices Weak

(By Radiogram)

BERLIN, GERMANY, April 5.

April prices of the pig iron and raw steel syndicates continue unchanged and the steel syndicate maintains the 35 per cent reduction of its members' output. Business continues unimproved with steel bars, wire and wire rods quite and the scrap market again declining. There has been a sharp decline in sales of sheets. Pig iron, unaffected by the dullness of the steel markets, shows a slight increase in the volume of sales.

Renewed efforts to establish a thin sheets syndicate have failed. The export market is showing more activity, but steel bars have declined further to £5 6s. per metric ton (1.17c. per lb.), f.o.b. port. As a result of the provisional agreement for the International Rail Makers Association, the export price of steel rails has been fixed at £6 per metric ton, f.o.b. ($29.70 per gross ton).

Formation of Western Steel Corporation Expected Within Month—International Negotiations Continue

BERLIN, GERMANY, March 20.—The Western Steel Corporation, which, thus far exists only as a study organization, will probably be formed within the next month with capital stock of 700,000,000 to 800,000,000 m. In addition there will be about 120,000,000 m. of bonus-shares and probably a credit from the banks of about 100,000,000 m. Financial reports of the three principal corporations entering into the merger show net profits for their last fiscal year, but no dividends were paid.

The Friedrich Krupp A. G., one of the largest steel companies not entering into the Western steel merger, shows an operating surplus of more than 32,000,000 m. for the last fiscal year. After writing off a total of almost 16,000,000 m. there is a net loss of more than 15,000,000 m. The Krupp works estimate the loss through destruction of machinery under the treaty, after deducting the compensation received from the state, at close to 100,000,000 m.

It is reported here that the International Rail Makers Association will operate with each country a unit in the syndicate. Such an arrangement presupposes a centralized domestic organization in each country with authority to enforce the decisions of the association. In the past one of the great obstacles to international agreements of this kind has been the lack of such organizations except in Germany, which has syndicates that act with considerable authority in the larger branches of the steel industry. In countries which have no national syndicates any mill electing to remain outside such an international agreement could ignore its restrictions on prices and production. In

---

British and Continental European prices per gross ton, except where otherwise stated, f.o.b. makers' works, with American equivalent figured at $4.86 per £ as follows:

Durham coke, del'd..	£0	19s.	to	£0	19½s.	$4.62	to	$4.73
Bilbao Rubio ore†	1	1½				5.22		
Cleveland No. 1 fdy..	3	12½	and	3	13*	17.62	and	17.74*
Cleveland No. 3 fdy..	3	10	and	3	10½*	17.01	and	17.13*
Cleveland No. 4 fdy..	3	9	and	3	9½*	16.77	and	16.88*
Cleveland No. 4 forge	3	8	and	3	8½*	16.52	and	16.65*
Cleveland basic	3	10	and	3	10½*	17.01	and	17.13*
East Coast mixed	3	16½	to	3	17	18.59	to	18.71
East Coast hematite..	4	19				24.06		
Ferromanganese	15	10				75.33		
*Ferromanganese	14	5	to	14	10	69.25	to	70.47
Rails, 60 lb. and up..	6	15	to	7	5	32.80	to	35.24
Billets	6	0	to	7	10	29.16	to	36.45
Sheet and tin plate bars, Welsh	6	5				30.38		
Tin plates, base box..	0	19¼	to	0	19½	4.68	to	4.75
Black sheets, Japanese specifications	14	12½				71.08		
						C. per Lb.		
Ship plates	7	0	to	7	10	1.52	to	1.62
Boiler plates	11	0	to	11	10	2.39	to	2.49
Tees	7	2½	to	7	12½	1.55	to	1.68
Channels	6	7½	to	6	17½	1.38	to	1.48
Beams	6	2½	to	6	12½	1.32	to	1.43
Round bars, ¾ to 3 in.	7	12½	to	8	0	1.65	to	1.76
Steel hoops	10	10	and	11	0*	2.28	and	2.39*
Black sheets, 24 gage	11	5	to	11	10	2.35	to	2.49
Galv. sheets, 24 gage	15	12½	to	16	0	3.39	to	3.47
Cold rolled steel strip, 20 gage	18	0				3.91		

*Export price.
†Ex-ship, Tees, nominal.

Continental Prices, All F. O. B. Channel Ports

Foundry pig iron:(a)								
Belgium	£3	5s.				$15.80		
France	3	5				15.80		
Luxemburg	3	5				15.80		
Basic pig iron:(a)								
Belgium	3	1½				14.94		
France	3	1½				14.94		
Luxemburg	3	1½				14.94		
Coke	0	18				4.37		
Billets:								
Belgium	4	7	to	£4	10s.	21.26	to	$21.87
France	4	7	to	4	10	21.26	to	21.87
						C. per Lb.		
Merchant bars:								
Belgium	5	3½	to	5	10	1.14	to	1.21
Luxemburg	5	3½	to	5	10	1.14	to	1.21
France	5	3½	to	5	10	1.14	to	1.21
Joists (beams):								
Belgium	4	16½	to	5	0	1.06	to	1.10
Luxemburg	4	16½	to	5	0	1.06	to	1.10
France	4	16½	to	5	0	1.06	to	1.10
Angles:								
Belgium	5	2	to	5	4	1.12	to	1.15
⅛-in. plates:								
Belgium	5	18	to	6	2	1.30	to	1.34
Germany	5	18	to	6	2	1.30	to	1.34
⅜-in. ship plates:								
Belgium	5	9	to	5	11	1.20	to	1.22
Luxemburg	5	9	to	5	11	1.20	to	1.22
Sheets, heavy:								
Belgium	6	3	to	6	4	1.35	to	1.37
Germany	6	3	to	6	4	1.35	to	1.37

(a) Nominal.

consequence there is still some speculation as to how successfully the rail syndicate can be operated.

Negotiations for an international steel syndicate recently held in Paris are to be resumed in April. In the Paris discussions French mills showed little inclination to agree to the German demand for a general reduction of output and British mills are not expected to join. The German consuming industries and the government are apparently strongly in favor of the formation of such a syndicate.

FRENCH MILLS WELL BOOKED

German Competition Weakens Export Prices and Domestic Demand Is Poor—Pig Iron Market Strong

PARIS, FRANCE, March 26.—The market continues calm and prices unchanged as a result of the uncertainty as to the future and the filled-up condition of mills. In foreign markets competition from Belgian mills is increasing as the Belgian franc declines and German prices are still below the world market quotations of other steel producing countries.

The International Rail Makers Association has been definitely re-established, the participating units first satisfying their own domestic demand and then allocating among themselves the requirements of the non-producing countries. Since March 12 a provisional price of £6 per ton ($29.15), f.o.b. mill, has been fixed on rails. (This substantiates the report from Japan to the same effect published in THE IRON AGE, March 25, page 886.)

The agreement of Belgian, French and Luxemburg producers of phosphoric pig iron for the unification of sales methods and classification of pig iron, as well as the establishment of uniform prices, f.o.b. Antwerp, Le Havre and Dunkirk, is apparently operating to the satisfaction of all concerned, as phosphoric pig iron is firm and shows an upward tendency.

Negotiations for the supplying of the German Raw Steel Association with pig iron and semi-finished material by Lorraine and Luxemburg producers on a yearly basis are well advanced, but have not yet been concluded. Discussions will be resumed shortly at Dusseldorf, Germany. Efforts to form an international agreement of steel producers continue with the object of adapting international production of all kinds of steel to the consuming power of the world. While there is considerable interest in these discussions, the problems involved are considered almost insurmountable obstacles.

Pig Iron.—Demand continues at a fairly high level, particularly for phosphoric iron, but the total tonnage reserved for the March requirements of domestic foundries will not be absorbed. Based on this, producers have set the April supply at 50,000 tons. This tonnage added to the quantity still to be delivered on March orders is expected to be ample to satisfy the demand which is showing a tendency to diminish. April prices are the same as in March, 407.50 fr. ($14) per ton for phosphoric foundry and 437.50 fr. ($15.05) per ton for medium phosphoric foundry iron. Export demand continues satisfactory and prices are expected to advance slightly before long. No. 3 P. L. is quoted at 345 fr. ($11.90), f.o.b. Antwerp, and an increase of 10 to 15 fr. is anticipated. Hematite iron producers have decided to make no change in quotations for April, although in most cases furnaces are well booked with business. April prices are unchanged at 505 fr. ($17.40) for forge quality and 535 fr. ($18.40) per ton for foundry grade. The April allotment for domestic foundrymen has been fixed at 40,000 tons, and producers in addition will accept business on a tentative allotment of 30,000 tons for May and 20,000 tons for June delivery. Larger production of special hematite iron is aiding in the restriction of imports of British hematite.

Semi-Finished Material.—Buyers show even greater reserve than formerly and mills are barely able to maintain prices at the present level. Foreign demand is light and prices show a tendency to weakness. Blooms are weak at £3 19s. to £4 per ton ($19.20 to $19.45), f.o.b. Antwerp. Billets are in better demand and the reduction of stocks is making prices a little firmer at about £4 7s. 6d. ($21.25), f.o.b. Antwerp.

Finished Material.—Prices are being fairly well maintained and mills are still well booked for several months ahead. In most cases ten to twelve weeks delivery is quoted. Competition of both Belgian and German mills is becoming more severe, and export prices are declining as a result. Beams are fairly firm at £4 16s. 6d. to £4 17s. 6d. per ton ($23.45 to $23.70), f.o.b. Antwerp, but German quotations contine at about 6d. less. Steel bars are weaker at about £5 3s. ($25), f.o.b. Antwerp. Export demand for sheets has improved slightly but German competition is still severe and prices show a tendency to further weakness. Medium gage black sheets of Thomas steel are quoted at about £5 18s. ($28.65), f.o.b. Antwerp.

GERMAN MARKET STILL QUIET

Foreign Competition Depresses Domestic Market but Exports of Machinery, Wire Rods and Pipe Improve

BERLIN, GERMANY, March 20.—The recent increase in activity of the scrap market, which was regarded as evidence of a general improvement in the iron and steel markets has not been maintained. While the daily rate of production of pig iron in February marked a slight advance from the January output, the rate of 22,549 tons per day compares rather unfavorably with the daily rate of 31,189 tons in February, 1925. March shows no improvement and the ore mines, such as the Lahn, Dill and Siegerland districts, report serious de pression.

French and Belgian competition in international markets has declined, but it continues to exercise a depressing effect on German domestic trade. As evidence of no genuine improvement in market conditions the Raw Steel Syndicate is maintaining its 35 per cent reduction of output throughout April. Only a few products have shown a slight improvement recently, such as the tube and wire rod markets, for which there has been a fairly good export demand. The steel bar market continues weak and the Raw Steel Syndicate's official prices for semi-finished also are unchanged. Ingots are being maintained at 104.25 m. ($24.82) per ton, blooms at 111.95 m. ($26.65) and billets at 119.25 m. ($28.40). Competition from the Saar mills is rather severe, and occasionally these prices are shaded. A somewhat different situation prevails in central Germany, where dealers have been charging such high prices for bars and structural material that the Ministry of Industry has started an investigation.

Builders of machinery and rolling stock report a slight improvement in the volume of new business, particularly for export. Domestic demand, however, although it has increased somewhat, continues about half of March, 1925. Shortage of working capital is still given as the explanation of slack buying by users of industrial machinery and machine tools. Demand for textile machinery, particularly for silk mills, is better than for some time. Agricultural machinery manufacturers are quite active, but in the Leipzig district other branches are still reducing the number of men on their payrolls. The Association of Machine Manufacturers points out that production costs increased 6 per cent in 1925 as a result of higher wages and increased cost of materials. Locomotive and car builders are still suffering from lack of sufficent orders, foreign markets with adverse exchange rates finding it more profitable to place their business in countries also suffering from adverse exchange, such as France.

Expected Government efforts to aid depressed branches of the steel and machinery industries may have some beneficial effect. The Railroads Corporation has promised a credit of 100,000,000 m. to the railroads to enable them to make purchases of rolling stock, locomotives and other equipment, and a credit of 200,000,000 m. has been promised for dwelling construction.

which should help to increase the demand for highly manufactured metal products and structural steel.

Although there is still considerable complaint by machinery manufacturers, German export trade in machinery is recovering. In January the exports of machinery, electrical equipment and automobiles totaled 50,463 tons compared with 37,085 tons in January, 1925.

Luxemburg Mills Lower Production as Exports Decline—Arbed and Terres Rouges Combine

LUXEMBURG, March 26.—February marked a slight decline in the operating rate of most of the Luxemburg mills, export trade being considerably curtailed and prices weaker. Contributing to this situation was the slight decline in finished and semi-finished steel prices as a result of complete resumption of works in the Charleroi district, expectation of a coal strike by British buyers and a rise in the value of the Danish and Norwegian crowns, which curtailed purchases by Scandinavian buyers. Reduction of stocks in China has caused a slight recovery in demand, but the civil war there still prevents resumption of normal business. Demand from Japan continues light. Sales to consumers in the United States have been considerably smaller since the resumption of lower price quotations by German mills, which are apparently securing a large part of current business.

During February, at a general meeting of share holders of the Acieries Reunies de Burbach-Eich-Dudelange and of the Société Metallurgique des Terres Rogues, the recently discussed community of interests of the two companies was ratified.

While the property and personnel of the two mills will continue separate they will operate as a single unit, continuing to sell through the Luxemburg Comptoir Metallurgique. This new unit will be one of the largest steel interests in Europe.

On Feb. 28 there was a total of 38 furnaces in blast in Luxemburg. The total production of pig iron was 185,098 tons and the total steel ingot output was 170,447 tons.

Not All German Syndicates Are in Complete Control of Prices

LÜBECK, GERMANY, March 1.—With syndicates of producers in operation throughout the German iron and steel industry, it is perhaps noteworthy that the only association that is a survival of the pre-war German syndicates is the German Wood Screw Association in Cologne. All the present syndicates have been established or reestablished since the stabilization of the mark.

Despite the almost complete inclusion of German industry in various syndicates of makers, the control of the various associations over their members is apparently incomplete in many cases. It is claimed that with a firm order in hand many producers approached directly by the prospective purchaser will grant concessions despite the heavy penalty provided by the association. These concessions or discounts from the established price are not given on the discounts, it is said, but are made as allowances for wrong delivery, which may have been agreed upon at the time of purchase, as a reduction for delayed shipment or because of difference in transportation costs.

This lack of adherence to the prices set by the association is evidently confined to the smaller associations, members of the larger syndicates such as the plate, black steel sheet, galvanized sheets and hoop, the tube and wood screw associations and the Stahlwerksverband which controls bars, rods and structural material, following closely the decisions of their syndicates.

Without a lost-time accident in 116 days is reported by the National Safety Council as the record of the 3000 workers in the Joliet works of the Illinois Steel Co.

TESTS GERMAN BLACK SHEETS

Japan Finds Light-Gage Open-Hearth Grade Satisfactory—Imperial Steel Works Books Rail Order

NEW YORK, April 6.—Activity in the Japanese market is largely confined to rail business, generally placed with European mills, but recently to some small lot purchases of structural material. Chinese buying is principally of small lots of tin plate and galvanized sheets for Shanghai or Canton. On tin plate the quotations of American mills are considerably too high with the Welsh price from $5.25 to $5.30 per base box, c.i.f. Japan. Although British prices on light-gage black sheets are still about $80.25 per ton, c.i.f. Japanese port, mills in the United States are quoting slightly higher than the $81 to $81.50 per ton at which some recent business is reported to have been closed. While there are no sizable tonnages of black sheets under inquiry with which to test the market, exporters to the Far East question that the present $83 per ton price would be shaded much.

Reports continue of Japanese investigation of Continental sheets, in an effort to discover if any quality equivalent to British or American makes is obtainable. Not long ago a trial shipment of open-hearth, light gage black sheets was made to Japan by a Belgian maker. While the quality was apparently acceptable, it is understood that the sheets were only 30 in. wide instead of 36 in. Recently a large German rolling mill has made trial shipments of open-hearth, one pass cold rolled black sheets, 13 to the bundle of 107 lb., which were reported, following tests made in Japan, to be equivalent in quality to the British makes. This mill is understood to have increased its capacity on this gage of sheet from about 250 tons a month to 1000 or 1500 tons. The price quoted by the German maker is understood to have been slightly under the British market.

Among the recent inquiries for rails from Japanese sources, the 25 miles of 45-lb. rails for the Kabafuto railroad in Saghalien was awarded to Mitsui & Co. and placed with the Imperial Steel Works in Japan at a price said to have been slightly lower than the lowest Continental bid of about $34.25 per ton, c.i.f. Japanese port.

A rail inquiry now before the market is from Osaka municipality for ½ mile of 91-lb. grooved rails and three miles of 96-lb., 7-in. high T-rails. Manufacturers of gas pipe are quoting on a small lot of 60 tons of ½ to 1½-in. pipe for a Japanese consumer. Recent purchases of structural material have included about 450 tons of bridge material, another order for about 160 tons of girders and about 100 tons of bridge material for the Osaka Electric Railway, all placed with American mills.

Importers of Continental steel for American consumers are reported to be quoting deformed steel bars of structural grade as low as 1.75c. per lb., base, c.i.f., duty paid. There is still a large volume of inquiry for small lots of reinforcing bars and structural material but the actual business closed is smaller than earlier in the year. Among inquiries for rails on which foreign prices are being accepted is one from a railroad in Baltimore asking for 6000 to 7000 tons of 80-lb., A. R. A. sections.

Austria's Steel Output in 1925

The pig iron and steel production of Austria in 1925, compared with 1924, is officially given as follows in metric tons:

	1925	1924
Pig iron	377,323	266,639
Steel	463,578	369,643

Of the pig iron output last year only 4959 tons was foundry iron, the rest being steel-making iron. Of the steel output in 1925, the open-hearth amounted to 420,719 tons.

Machinery Markets and News of the Works

MODERATE BUYING

Machine Tool Business Fairly Good but Shows a Decline

Automobile Manufacturers Continue to Make Purchases but the Railroads Are Slow in Closing Lists

MACHINE tool buying has declined somewhat in volume, but reports from various centers reflect a fair degree of activity. Automobile manufacturers continue to buy in small lots for replacement purposes, but the railroads, some of which have had lists pending for several weeks, are slow in closing.

A Cincinnati manufacturer is figuring on a prospective order for 40 polishing machines; another inquiry for 60 polishing machines, reported a few weeks ago, is still pending.

The Nickel Plate railroad is negotiating for several tools. The Illinois Central is expected to place orders soon against a recent sizable inquiry. The Pittsburgh & Lake Erie bought a 100-in. boring mill.

The McClintic-Marshall Construction Co., Pittsburgh, bought 42-in. and 60-in. rotary planers.

New York

NEW YORK, April 6.

MACHINE tool buying continues in fairly good volume, although some tapering off in demand has been noticed by local sales offices. Among the machines reported sold during the week are the following: 36-in. side-head boring mill to the Pratt & Whitney Co., Hartford, Conn.; 48-in. 300-ton carwheel press to the Phoenix Portland Cement Co., Birmingham; 16-in. geared-head lathe, 6-in. vertical shaper and a 48-in. measuring machine to the General Electric Co., Schenectady, N. Y.; two automatic milling machines to the Mehl Machine Tool & Die Co., Roselle, N. J.; 16-in. geared-head lathe to the Aluminum Die Castings Co., Garwood, N. J.; three bench lathes to the Victor Talking Machine Co., Camden, N. J.; production milling machine to Black & Decker Mfg. Co., Baltimore.

Contract has been let by John Hassell, Inc., Clay and Oakland Streets, Brooklyn, manufacturer of rivets, wire nails, etc., to the Barney-Ahlers Construction Co., 110 West Fortieth Street, New York, for a three-story addition, 75 x 100 ft., to cost $100,000 with equipment.

The Greenpoint Iron & Pipe Co., 330 Graham Avenue, Brooklyn, is completing plans for a one-story works, 80 x 120 ft., at 187-97 Maspeth Avenue, to cost about $80,000. It will include a service and garage department for company motor trucks and cars. Murray Klein, 39 Graham Avenue, is architect.

The Coldak Corporation, operated by the J. G. White Management Corporation, 33 Liberty Street, New York, manufacturer of electric refrigerating equipment, has plans under advisement for the establishment of additional plants at New York and Chicago. Factories are now located at Springfield, Mass., and Providence, R. I.

The Robert Rossman Co., 154 West Forty-ninth Street, New York, manufacturer and dealer in floor and wall tile products, has preliminary plans under way for a 12-story service and works building, 50 x 100 ft., at 156 East Fifty-sixth Street, to cost $450,000 with equipment. Dennison & Hirons, 288 Lexington Avenue, are architects.

The Harlem Valley Electric Corporation, Pawling, Dutchess County, N. Y., will take over and merge a number of electric light and power utilities in Putnam, Columbia, Dutchess and Westchester counties. Plans are under consideration for extensions and improvements in power plants and system, including transmission line construction. The company is operated by the Associated Gas & Electric Co., 61 Broadway, New York, which proposes to arrange a bond issue of $65,000,000 to carry out the project.

The Pennsylvania Cement Co., 131 East Forty-sixth Street, New York, has awarded a general contract to the Turner Construction Co., for additions to its plant at Portland Point, N. Y., consisting of one-story machine shop, packing mill, storage and distributing building, to cost $250,000 with equipment. The Jarrett-Chambers Co., 30 East Forty-second Street, New York, is architect.

Stockholders of the Manhattan Electrical Supply Co., 17 Park Place, New York, have approved of the sale of the storage battery division of the company, including plant at Ravenna, Ohio, devoted to this line of manufacture, to the National Carbon Co., 30 East Forty-second Street, New York, for $3,000,000. It is understood that the Ravenna works will be continued in service by the new owner. The Manhattan company will use a portion of the fund for expansion in other electrical lines, concentrating operations in the new factory at Jersey City, N. J., now in process of erection. Charles T. Baisley is president.

The Sikorsky Mfg. Co., Westbury, L. I., manufacturer of twin-engine and other airplanes, is considering the construction of a new plant in New England. The initial works will consist of several machine and assembling shops, hangars, gas stations, etc., with reported investment of $200,000. It is understood that the present works will be removed to the new location. Igor Sikorsky heads the company.

The Queens Borough Gas & Electric Co., Far Rockaway, L. I., has taken out a permit for a new one-story power plant, 75 x 84 ft., to cost $350,000 with equipment. Carlton Macy is president.

The Cox Baking Co., Van Wyck Boulevard and Bath Place, Jamaica, L. I., has plans for a two-story automobile service, repair and garage building, 90 x 100 ft., to cost about $80,000, for company auto trucks and cars. C. B. Comstock, 110 West Fortieth Street, New York, is architect.

The Board of Education, Union District No. 6, Montrose, N. Y., is considering the installation of manual training equipment in its proposed two-story and basement high school near the Albany Post Road, estimated to cost $325,000, for which bids are being asked on a general contract until April 19. Knappe & Morris, 171 Madison Avenue, New York, are architects.

Officials of the Raymond Concrete Pile Co., 140 Cedar Street, New York, have organized a subsidiary under Delaware laws, to be known as the Raymond Concrete Pile Co. of Cuba, Inc., capitalized at $600,000, to operate in Cuba and the West Indies.

Fire, March 27, destroyed a portion of the plant of the Carbo Oxygen Co., Hobart Avenue, Bayonne, N. J., manufacturer of industrial oxygen, hydrogen, etc., with loss reported at $25,000 including equipment. It is planned to rebuild.

The Otis Elevator Co., Eleventh Avenue and Twenty-sixth Street, New York, has awarded a general contract to James Stewart & Co., Inc., 17 East Forty-second Street, New York, for a one-story addition to its plant on First Street, Harrison, N. J., 80 x 100 ft., to cost $50,000.

A new company has been organized by W. C. Koller and Albert W. James, West Berlin, N. J., and associates, to construct a local ice-manufacturing plant to cost about $100,000 with equipment. A site has been secured near the city limits and work is expected to begin this month.

Fire, March 29, destroyed a portion of the plant of the Irvington Varnish & Insulator Co., Irvington, N. J., manufacturer of insulating materials, with loss reported at $100,000, including equipment. It will be rebuilt at once.

The Bonnell Motor Car Co., 562 Broad Street, Newark, N. J., representative for the Dodge automobile, has revised

The Crane Market

FEW new inquiries have appeared in the past week, either for overhead or locomotive cranes. The Anaconda Copper Mining Co., 25 Broad Street, New York, which has had an inquiry for several small capacity, single I beam cranes pending has recently asked for prices on a 1-ton gantry crane. The Phoenix Utility Co., 71 Broadway, New York, is reported to be preparing an inquiry for a 200-ton and a 100-ton overhead crane for hydroelectric projects in the West.

Among recent purchases are:

Barenzelli Cast Stone Co., Woodside, Long Island, N. Y., a 5-ton, 30-ft. span, 3-motor overhead crane from the Northern Engineering Works.

Pittsburgh & Lake Erie Railroad, a 25-ton locomotive crane from the Browning Crane Co.

Baltimore & Ohio Railroad, Baltimore, four 25-ton locomotive cranes equipped to operate magnets, from an unnamed builder.

Minnesota & Ontario Paper Co., International Falls, Minn., a 25-ton locomotive crane from the American Hoist & Derrick Co.

E. Atkins & Co., 90 Wall Street, New York, a 20-ton, 15-ft. span hand power crane for export to Cuba, from the Northern Engineering Works.

Enoch Johnson & Co., Nazareth, Pa., a 20-ton used Brownhoist locomotive crane from Philip T. King, New York.

plans nearing completion for a two-story and basement service, repair and garage building, 200 x 220 ft., to cost $200,000. Horace Bonnell is president.

The Tidewater Oil Sales Corporation, 11 Broadway, New York, will build a storage and distributing plant on the DeForest property at Sewaren, N. J., and will begin work soon. It is reported to cost about $50,000 with equipment.

Greisen & Tuzik, Raritan Building, 175 Smith Street, Perth Amboy, N. J., architects, have had preliminary sketches approved for the proposed three-story vocational school to be erected on Brunswick Avenue by the Middlesex County Vocational School Board, New Brunswick, N. J. It is expected to ask bids on a general contract soon.

The Specialty Handle Co., 125-35 New Jersey Railroad Avenue, Newark, has taken out a permit for an addition to cost about $50,000.

The Combustion Utilities Corporation, Steneck Trust Building, Hoboken, N. J., manufacturer of fuel saving devices, oil burners, temperature control appliances, and steam, plumbing and electrical specialties, has been incorporated. No expansion of the company's facilities is contemplated at present.

The United Hoisting Co., 310 West Sixty-fifth Street, New York, has been incorporated to manufacture electric and gasoline hoists, principally for rental to erectors of steel and general contractors. It is beginning business with two plants formerly owned by the Thomas & Buckley Hoisting Co. and the White Hoist & Machine Co. George S. Daso is president.

The Regal Toy Co., 110 East Forty-second Street, New York, has been incorporated and is engaged in the manufacture of toy novelties at Maspeth, Long Island. After April 15 its New York office will be at 570 Seventh Avenue.

The Cities Service Co., 60 Wall Street, New York, operating electric and other utility properties in several States, is disposing of a common stock issue to total $10,500,000, a portion of the proceeds to be used for extensions.

The Municipal Service Co., an interest of A. E. Fitkin & Co., 165 Broadway, New York, operating electric light and power properties in Pennsylvania, Maryland, Delaware, Virginia and Georgia, is disposing of a bond issue of $5,500,000, a portion of the proceeds to be used for the acquisition of additional properties, extensions and improvements in power plants and system. A. E. Fitkin is president.

Buffalo

BUFFALO, April 5.

THE Dobbie Foundry & Machine Co., Niagara Falls, N. Y., manufacturer of hoisting machinery, etc., is said to be arranging for the purchase of equipment for installation in its proposed one-story addition, reported to cost $65,000.

The Oswego River Power Corporation, Oswego, N. Y., will take over and operate the People's Gas & Electric Co., Oswego. The purchasing company has plans for extensions and improvements, including the acquisition of other utility properties in this section and a hydroelectric power development on the Oswego River.

The American-La France Fire Engine Co., Elmira, N. Y., manufacturer of motor-driven fire engines, etc., has awarded a general contract to the Walter Kidde Co., 140 Cedar Street, New York, for a one-story addition to its branch plant on Brookside Place, Bloomfield, N. J., used largely for the production of commercial motor trucks, estimated to cost $45,000. Starrett & Van Vleck, 393 Seventh Avenue, New York, are architects.

The Peters-Morse Mfg. Corporation, manufacturer of the Peters adding machine, Ithaca, N. Y., is in the market for a used No. ½ Van Norman duplex milling machine.

The Great Lakes Portland Cement Co., Marine Trust Building, Buffalo, has awarded a general contract to the Burrell Engineering Co., Jackson Building, Chicago, for its proposed mill on the Hamburg Turnpike, estimated to cost $1,500,000 with machinery. A. L. Beck is president.

The Sylvanite Gold Mines, Ltd., care of Edward L. Koons, president, 110 Franklin Street, Buffalo, has tentative plans for a new milling plant at its properties at Kirkland Lake, Ont., reported to cost close to $100,000 with machinery. Clark L. Ingham, 218 Pearl Street, Buffalo, is treasurer and assistant secretary.

The Board of Education, Union-Endicott District, Endicott, N. Y., is considering the installation of manual training equipment in the proposed two-story and basement high school on Main Street, to cost $350,000. T. I. Lacey & Son, Press Building, Binghamton, N. Y., are architects.

Philadelphia

PHILADELPHIA, April 5.

PLANS are being arranged by the Pennsylvania Railroad Co., Philadelphia, for the early electrification of its lines to Wilmington, Del., about 27 miles, and to West Chester, Pa., 25 miles, by way of Media, including the installation of automatic power and substation equipment, steel catenary structures, transmission lines, etc., estimated to cost $10,000,000, exclusive of rolling stock. Electrification of other suburban lines will be carried out following the completion of this work.

The R. & B. Auto Radiator & Body Co., 1429 Fairmount Avenue, Philadelphia, has awarded a general contract to the National Construction Co., 26 South Fifteenth Street, for a one-story addition, to be equipped largely for machine and metal-working service.

The addition to the plant of the Electric Storage Battery Co., Ontario and C Streets, Philadelphia, manufacturer of electric batteries, will be three-stories and basement, 55 x 250 ft., estimated to cost $150,000 with equipment, instead of a lesser amount, previously noted.

Fire, April 2, destroyed a portion of the plant of Williams, Brown & Earle, Inc., 918 Chestnut Street, Philadelphia, manufacturer of scientific instruments and equipment, with loss reported at close to $200,000, including damage to adjoining property. Plans for rebuilding are under consideration.

The Star Sprinkler Corporation, 3239 Market Street, Philadelphia, manufacturer of water sprinkler systems and equipment, has acquired the factory at Collins and Westmoreland Streets, on site 70 x 172 ft., and is said to be planning to occupy as a new plant.

The Monarch Mfg. Works, Salmon and Westmoreland Streets, Philadelphia, operating a general machine plant, has taken bids on a general contract for an addition, including improvements in the present works. Webber & Wurster, 1530 Locust Street, are architects.

Fire, March 29, destroyed a portion of the service, repair and garage building of the Fifth Street Garage, 1310-18 North Fifth Street, Philadelphia, with loss reported at $200,000, including building, equipment, and cars. Plans for rebuilding are under consideration.

The Crane Co., 836 South Michigan Avenue, Chicago, has plans under way for a one and two-story factory branch and distributing plant, 120 x 130 ft., at Indiana and Mediterranean Avenues, Atlantic City, N. J., to cost $100,000 with equipment. W. J. Clarke, company headquarters, is company architect. Howard A. Stout, Guarantee Trust Building, Atlantic City, is associated architect.

The Pacific Steel Boiler Corporation, Waukegan, Ill., organized to succeed to the plant and business of the

General Boilers Corporation, will soon begin superstructure work for the main fabricating unit at its new plant at Bristol, Pa., to be 320 x 350 ft. Foundations will also soon be laid for a one-story foundry, 90 x 150 ft. O. T. Nelson is president.

The City Commission, Trenton, N. J., has preliminary plans under way for the proposed machine shops for municipal repair and parts service, to be erected in connection with a new fire headquarters. The entire project is estimated to cost $380,000 with equipment. City Engineer Gregory is in charge.

The Shamokin Coal Co., Shamokin, Pa., operating at the former local Nelson colliery, is installing additional equipment for increased output and will provide machinery for an ultimate production in excess of 650 tons per day.

Fire, March 29, destroyed a portion of the plant of the Wyoming Shovel Works, Wyoming, Pa., with loss estimated at $75,000. The damage was confined largely to the storage and distributing department. Plans for rebuilding are under consideration.

The Main Line Battery & Electric Co., 212 West Lancaster Avenue, Ardmore, Pa., has plans for a three-story addition to its works, including improvements in the present structure, to cost approximately $45,000 with equipment. John C. Norton, 29 West Lancaster Avenue, is architect.

Samuel J. Rowe, a former official of the Rowe-Stuart Motor Corporation, Lancaster, Pa., manufacturer of motor trucks, has acquired the property of the company near Lancaster at a receiver's sale, consisting of a tract of 4 acres of land, buildings, etc., for a consideration of $70,000. Tentative plans are said to be under consideration for a resumption of manufacture at the plant for a kindred line of specialties.

The Upper Dublin Township School Board, Fort Washington, Pa., is considering the installation of manual training equipment in its proposed new senior and junior high school at Upper Dublin, Pa., to cost $200,000, for which preliminary plans are being drawn by W. K. Phillips, 231 South Fifth Street, Philadelphia, architect.

The Reading Hardware Corporation has been organized under Delaware laws with capital of $22,500,000, to take over and expand the plant and business of the Reading Hardware Co., Sixth and Willow Streets, Reading, Pa. The new company is headed by officials of the Public Industries Corporation, including Edward M. Welles, New York, and associates, who recently acquired the property for $3,900,000. It is purposed to develop the plant for other branches of hardware production.

The West Pittston School District, West Pittston, Pa., plans the installation of manual training equipment in its proposed two-story and basement high school to cost $250,000, for which superstructure will soon begin. Mack & Sahm, and Thomas Foster, Coal Exchange Building, Wilkes-Barre, Pa., are associated architects.

The Holland Furnace Co., Holland, Mich., is completing the first unit of its new plant at Bethlehem, Pa., and will begin operations at once. Other units will be equipped in the near future and extensive additions made in the working force. J. P. Koll, general superintendent, will be in charge of initial production.

The Acme Sand & Gravel Co., Allentown, Pa., has taken over extensive sand and gravel properties at New Hope, Pa., located mainly on the Rhodes farm, and will establish a new branch plant at this location.

St. Louis

ST. LOUIS, April 5.

THE Terminal Railway Association, St. Louis, is in the market for a 3-ft. radial drill. It recently purchased a Foster 2-B turret lathe.

The Wabash Railway recently purchased a 90-in. Niles driving wheel lathe.

The Missouri Pacific purchased a Woodward & Powell 36 in. x 36 in. x 42 in. crank planer and a 1500-lb. Niles steam hammer.

Work will soon begin on a four-story addition to the cold storage and refrigerating plant of the St. Louis Independent Packing Co., 3817 Chouteau Street, St. Louis, 115 x 170 ft., estimated to cost $150,000 with equipment. C. L. Krause is company architect. W. W. Krenning is treasurer.

The Missouri Hydro-Electric Co., Bagnell, Mo., will proceed with its proposed hydroelectric power project on the Osage River, near Bagnell, to develop an ultimate capacity of 385,000 hp. The plant is estimated to cost $15,345,000, and will be supplemented by an auxiliary steam-operated electric power station to cost approximately $1,350,000. The company is arranging for a bond issue of $20,000,000 to carry out the project. Walter Cravens, head of the Kansas City Joint Stock Land Bank, Kansas City, Mo., is president of the company.

The Vesper Buick Auto Co., Grand Avenue and Lindell Street, St. Louis, representative for the Buick automobile, has filed plans for a two-story service, repair and garage building, 100 x 200 ft., to cost about $175,000. The installation will include a lathe, drill press, air compressor and other tools, to cost approximately $20,000.

The Huttig Sash & Door Co., 1300 South Vanderventer Street, St. Louis, has awarded a general contract to the Selden-Breck Co., Fullerton Building, for a four-story addition, 117 x 130 ft., to cost $80,000. A. J. Siegel is president.

The Board of Education, Cambridge, Neb., plans the installation of manual training equipment in its proposed two-story high and grade school to cost $100,000, for which superstructure will soon begin. Beuttler & Arnold, Grain Exchange Building, Sioux City, Iowa, are architects.

The City Council, Poplar Bluff, Mo., has tentative plans for extensions and improvements in the municipal electric light and power house, including the installation of additional equipment, estimated to cost $30,000.

The City Council, Hillsboro, Kan., plans the installation of pumping machinery in connection with a proposed municipal waterworks, for which a bond issue of $102,000 has been approved. The F. E. Devlin Engineering Co., Bitting Building, Wichita, Kan., is engineer.

Fire, March 29, destroyed a portion of the planing mill of the Wisconsin-Arkansas Lumber Co., Malvern, Ark., known as mill No. 2, with loss estimated at $70,000 including equipment. It is planned to rebuild.

The Quartermaster Department, United States Army and Navy Hospital, Hot Springs, Ark., has been granted an appropriation of $150,000 for a new power house, for which plans will soon be drawn. A pumping plant will also be installed.

The Omaha Folding Machine Co., 1117 North Twenty-second Street, Omaha, Neb., is completing plans for a new one-story factory, 60 x 120 ft., to cost $45,000. James P. Guth, Paxton Building, is architect.

The Arkansas Public Service Co., Monette, Ark., is considering the construction of a new ice-manufacturing plant to cost $65,000 with equipment.

The City Council, Branson, Mo., plans the installation of pumping equipment in connection with a proposed municipal waterworks and sewage system, reported to cost $75,000. The Alexander Engineering Co., Woodruff Building, Springfield, Mo., is engineer.

Indiana

INDIANAPOLIS, April 5.

CONTRACT has been let by the William H. Johnson & Sons Co., 330-32 East St. Joseph Street, Indianapolis, manufacturer of heating and ventilating equipment, radiator shields, etc., to Leslie Colvin, Continental Bank Building, for a two-story addition, 60 x 65 ft., to cost about $30,000. Additional machinery will be installed. Richard A. Shirley is president.

The American Vitrified Products Co., Brazil, Ind., has begun the rebuilding of the portion of its local sewer pipe manufacturing plant, recently destroyed by fire with loss in excess of $75,000 including equipment. New machinery will be installed. Headquarters are at Akron, Ohio.

The G. M. Diehl Machine Co., Wabash, Ind., has awarded a general contract to Floyd Webb, Wabash, for a one-story addition, 45 x 125 ft., to be used as an assembling works.

A battery of four 440-hp. boilers and auxiliary equipment, pumping machinery, air compressor and other equipment will be installed in the proposed power plant to be constructed by the Joseph H. Hill Co., Richmond, Ind., florist, in connection with a greenhouse project to cost approximately $400,000. The Lord & Burnham Co., 208 South La Salle Street, Chicago, is architect and engineer.

The Standard Oil Co. of Indiana, 2340 Division Street, Evansville, Ind., and 910 South Michigan Avenue, Chicago, will soon begin the erection of its proposed storage and distributing plant at Evansville, to cost $200,000 with equipment. The work will include a machine shop, and service and garage building for company motor trucks and cars. Schlinz & Bailey, 53 West Jackson Street, Chicago, are architects.

The Brazil Clay Co., Brazil, Ind., recently formed, is pushing construction on a new local plant for the manufacture of brick and other clay products and will soon begin machinery installation. The plant will cost in excess of $50,000 and is expected to be ready for service in May, giving employment to about 125 operatives.

The Edwards Iron Works, Inc., South Bend, Ind., has awarded a general contract to the H. G. Christman Co., 306 South Notre Dame Avenue, for a one-story addition to cost $20,000.

The Northern Indiana Power Co., Guaranty Building, Indianapolis, has plans for a one-story equipment storage and distributing building, with repair department, at Noblesville, Ind., to cost $45,000.

The Lippincott Glass Co., Alexandria, Ind., manufacturer of blown glassware specialties, is reported to be planning an addition to cost in excess of $50,000 with machinery. Work will likely begin during the summer. Perry McEwen is general manager.

The City Council, Elkhart, Ind., is planning the installation of pumping equipment in connection with proposed extensions and improvements in the municipal waterworks, estimated to cost $100,000. The Burns & McDonnell Engineering Co., Interstate Building, Kansas City, Mo., is engineer.

South Atlantic States

BALTIMORE, April 5.

JOHN C. RAUM & SON, 407-9 South Sharp Street, Baltimore, manufacturers of automobile bodies and wagons, have leased a new factory to be constructed at Taylor Avenue and Curtain Street, 100 x 150 ft., to cost $75,000. The structure is slated to be ready for occupancy during July and will more than double the present floor area of the Raum works. It is purposed to remove the existing business to the new location and install considerable additional machinery.

The Motor Ramp Co. of Maryland, Inc., 11 East Lexington Street, Baltimore, F. N. Iglehart, vice-president, is completing plans for the early erection of a two-unit six-story and basement service, repair and garage building, to cost $325,000 with equipment. Parker & Shaffer, 280 Madison Avenue, New York, are architects.

The United States Engineer, Navy Building, Washington, is asking bids until May 4, for the construction of a power plant to be used in connection with a water supply project for the District of Columbia.

The Queen City Glass Co., Cumberland, Md., recently organized, has taken over the former local plant of the Cumberland Ice Co., and will remodel for a new factory to manufacture light fixtures, globes and other glass products.

John L. Tregellas, Inc., 10 East Fayette Street, Baltimore, has inquiries out for a concrete mixer.

The Habro Mfg. Co., Greenville, S. C., recently organized with a capital of $100,000, will operate a plant on Green Avenue for the manufacture of automobile truck bodies and other commercial bodies. B. D. Kennedy is secretary.

The Southern Public Utilities Co., Charlotte, N. C., has acquired the properties of the Surry Power Co., Mount Airy, N. C., and plans extensions and improvements in this district. A hydroelectric power development is reported under consideration.

The Studebaker Corporation, South Bend, Ind., and 1631 Fourteenth Street, N. W., Washington., has awarded a general contract to the Wardman Construction Co., 1430 K Street, N. W., for a three-story factory branch, service and repair building, 150 x 150 ft., at Kansas Avenue and Upshur Street, N. W., reported to cost $150,000 with equipment. Frederick B. Pyle, 1420 New York Avenue, N. W., is architect.

The Georgia Ice Co., 431 Harmon Street, Atlanta, Ga., is considering the construction of a one-story cold storage and refrigerating plant at Thirty-first and Broad Street; a similar plant is also contemplated at Waldburg and East Broad Street.

The Zettle-Jones Co., Albany, Ga., is completing arrangements for an automobile assembling plant and has inquiries out for proposed equipment, including lathes, drill presses, air compressor, emery and grinding wheels, forge equipment, etc.

The Board of Aldermen, Highlands, N. C., is asking bids until April 14, for a municipal hydroelectric power plant, including two substations, transmission lines, etc. Warren H. Booker, Charlotte, N. C., is consulting engineer. L. W. Rice is town clerk. Plans and specifications at the last two noted offices.

The Phosphate Mfg. Co., Savannah, Ga., has concluded negotiations for the purchase of the local mill of the Phosphate Mining Co., for $300,000 and will take over the property on June 1, continuing the production of acid phosphate, fertilizers, etc. Plans for extensions and improvements are under consideration.

James M. Workman, American Bank Building, Greensboro, N. C., architect, has plans for a two-story automobile service, repair and garage building, 125 x 260 ft., estimated to cost $275,000 with equipment.

The Chicago Pneumatic Tool Co., 6 East Forty-fourth Street, New York, has acquired the plant and business of the George Oldham & Son Co., 200 Scott Street, Baltimore, manufacturer of pneumatic tools, etc., heretofore operated by the Bartlett Hayward Co., Baltimore. The new owner will consolidate with its business.

The Atlanta Roofing & Supply Co., Inc., 636 West River Street, Savannah, Ga., is said to have preliminary plans for the establishment of a new division for the manufacture of portable steel buildings, galvanized metal gutters and kindred products. It is purposed to lease additional space. It is also proposed to install a grinding department for mineral paint production.

The City Council, Shelby, N. C., A. P. Weathers, mayor, is asking bids until April 20 for equipment for waterworks extensions and improvements, including one 900-gal. per min. service pump driven by gasoline engine; two 750-gal. per min. motor-driven pumping units; one auxiliary pumping station; one 2,000,000-gal. filter; 10 tons of special castings; setting and connecting machinery, etc. The J. B. McCrary Engineering Co., Atlanta, Ga., is engineer.

The Southern Box & Basket Co., Macon, Ga., is considering rebuilding the portion of its plant destroyed by fire March 25, with loss reported at close to $200,000 with machinery. The wire-bound box-manufacturing plant of Maxwell Brothers, on neigboring site, was also considerably damaged by the same fire; official estimate of loss not announced.

The Middleton Shoals Power Co., recently organized by J. J. Fretwell, Anderson, S. C., and associates, is said to have plans under way for a hydroelectric power development at Middleton Shoals, Middleton, S. C., with ultimate capacity of 200,000 hp., estimated to cost $450,000 with transmission system.

The Buckeye Incubator Co., Springfield, Ohio, has concluded negotiations for the purchase of the plant and business of the Newtown Giant Incubator Corporation, Harrisonburg, Va., for about $1,000,000. The purchasing company will take over the property on May 1 and will continue the plant for the manufacture of incubators, brooders, etc. Tentative plans are under consideration for expansion.

The Consolidated Ice & Fuel Co., Union, S. C., contemplates the early rebuilding of the portion of its ice-manufacturing plant destroyed by fire March 25, with loss reported in excess of $55,000 including equipment.

Cleveland

CLEVELAND, April 5.

APRIL has started with a fair volume of machine tool business in scattering orders, mostly for single machines. The Nickel Plate railroad is negotiating for several tools, including a boring mill, shaper and lathe, for replacing equipment destroyed when its Franklin, Ind., shops were burned. A northern Ohio plant purchased two 16-in., one 13-in., and one 20-in. Pratt & Whitney lathes. A local manufacturer of turret lathes booked a good number of orders the past week, all in single machines. Presses are moving slowly, although manufacturers have a good volume of business on their books. Activity in grinding machines is pretty much confined to single tools. While Detroit automobile manufacturers are buying some machinery it is largely in single tools for filling in or replacement. Sales include four profiling machines to the Locke Pattern Works, Detroit; a 10-in. x 60-in. thread milling machine to the Haughton Elevator & Machine Co., Toledo, Ohio; a 20-in. geared-head lathe to the U. S. Aluminum Co., Cleveland; a thread milling machine to the Timken-Detroit Axle Co., Detroit, and a production milling machine to the Machine Specialty Co., Ann Arbor, Mich.

The Lindsay Wire Weaving Co., 14025 Aspinwall Avenue, Cleveland, has taken bids for a two-story addition, 50 x 165 ft. H. L. Lindsay is president. Bohnard & Parsons, 1900 Euclid Building, Cleveland, are the architects and engineers.

The Electric Auto Lite Co., Toledo, Ohio, manufacturer of electric equipment for automobiles, has placed a general contract with A. Bentley & Sons, Toledo, for a four-story addition, 60 x 100 ft., an additional four-story factory, 100 x 120 ft., and a one-story machine shop, 100 x 140 ft. C. O. Miniger is president.

Finzer Brothers, Sugarcreek, Tuscarawas Co., have taken bids for additions which will include a manufacturing and other buildings. New work will include a transformer station.

The Board of County Commissioners, Ashtabula, Ohio, has taken bids for the reconstruction of a sewage disposal plant. R. F. McDowell, 1770 East Eleventh Street, Cleveland, is the engineer.

The Barnes Motor Co., Cleveland, will erect a three-story service and sales station on Ivanhoe Road, at an estimated cost of about $125,000.

The Transue & Williams Steel Forging Corporation, Alliance, Ohio, plans the construction of a one-story factory addition, 80 x 240 ft.

Manual training departments will be provided in a high school in Mount Cory, Ohio, I. R. Harris, clerk of the Board of Education; also in a centralized grade and high school in Butler Township, Darke County, Ohio, Charles Bussard, Arcanum, Ohio, president of the Board of Education.

The Akron Foundry Co., 183 North Case Avenue, Akron, Ohio, has been organized to do general jobbing work in gray iron, brass and aluminum castings. It has leased the property formerly occupied by the Banner Foundry Co. J. J. Criswell, for nine years superintendent of the foundry of the Falls Clutch & Machine Co., Cuyahoga Falls, Ohio, is president; J. Hofmann, for 18 years core department foreman for the Falls Clutch & Machine Co., is vice-president, and W. E. Woodward, secretary and treasurer.

Chicago

CHICAGO, April 5.

IN both inquiry and buying the machine tool market is less active. The last two weeks in March were better in volume of sales than the first half of the month, but a large part of the business taken developed quickly and outside of pending railroad lists, little in the way of prospective sales is being carried over into April. Railroads, as usual, are slow in closing lists. The most active list is that of the Illinois Central. Deliveries remain about stationary, but prices are firmer. One prominent manufacturer has announced a 5 per cent advance in the prices of its smaller sizes of shapers.

The A. O. Smith Corporation, Milwaukee, the International Harvester Co., Milwaukee, and the Nash Motors Co., at its Kenosha, Racine and Milwaukee plants, are still interested in various types of tools. The Santa Fe is inquiring for an 18-in. x 10-ft. Le Blond, or equivalent, heavy duty engine lathe, complete with a 440-volt 3-phase 50-cycle motor. Alternate bids are being asked on a 22-in. x 10-ft. and a 24-in. x 10-ft. motor-driven lathe. This railroad is also in the market for a Ransom No. 141, or equivalent, motor-driven double dry grinder, with 24-in. x 3-in. wheels, having a surface speed of 6000 ft. per min. A motor for 440-volt 3-phase 50-cycle current is called for. The Calumet Steel Co., Chicago, has purchased a 20-in. shaper. Used machine tools are moving slowly, but better prices are being realized than in the immediate past and dealers are rather optimistic concerning this branch of the trade.

The Illinois Central Railroad Co., 135 East Eleventh Place, Chicago, has plans for a one-story locomotive repair shop at Burnside, Ill., 165 x 340 ft., to cost $300,000 with equipment. A. J. Blaess is chief engineer.

The George B. Smith Chemical Co., Springfield, Ill., manufacturer of rubber and paint pigments, etc., has plans for an addition to cost about $50,000 with machinery.

Drying Systems, Inc., 11 South Des Plaines Avenue, Chicago, manufacturer of mechanical drying apparatus, has awarded a general contract to the R. & G. Construction Co., 6425 South Park Avenue, for a one-story top addition to the present three-story plant, including improvements in the existing factory, to cost $60,000. F. D. Chase, Inc., 720 North Michigan Avenue, is architect. F. A. Lippert is president and general manager.

The State Department of Administration and Finance, State Capitol, St. Paul, Minn., will soon ask bids on a general contract for a one-story power plant at the State Teachers' College, Duluth, in connection with a four-story institutional building. Both structures are estimated to cost $275,000. C. H. Johnson, Capitol Bank Building, St. Paul, is architect.

The Argo Iron & Metal Co., 1662 Elston Avenue, Chicago, has awarded a general contract to the Schuetz Construction Co., 3620 Kilbourne Street, for a two-story and basement addition to cost $100,000. It will be equipped largely for storage and distributing service.

The Neverslip Tire Chain Co., Boulder National Bank Building, Boulder, Colo., H. H. Donnelly, head, has preliminary plans for a new one-story factory reported to cost $40,000 with equipment

E. M. Klett, Pueblo, Colo., care of P. A. Gray, secretary, Pueblo Commerce Club, and associates are arranging for the establishment of a new company to construct a plant for the manufacture of wire brushes and kindred wire products. It will consist of a two-story and basement structure, 100 x 150 ft., and cost approximately $50,000 with equipment.

The Northeastern Iowa Power & Light Co., Clermont, Iowa, is reported to have preliminary plans for a new steam-operated electric power house at New Hampton, Iowa, to cost about $200,000 with equipment.

The Lemont Refining Co., Lemont, Ill., has begun work on an addition to its local oil refinery and will install equipment to increase the capacity from 1000 to 1500 bbl. per day. J. F. Donnelly is superintendent.

The Chicago Automatic Conveyor Co., 37 West Van Buren Street, Chicago, is reported to be arranging for a new plant at Seventy-fourth Street and Oakley Avenue, to cost $65,000 with equipment.

The C. A. Dunham Co., Marshalltown, Iowa, manufacturer of heating systems and equipment, has awarded contract to the C. F. Reimer Co., 210 West Second Street, for a one-story foundry addition, to be ready for service in about 60 days.

The Roxana Petroleum Corporation, Shell Building, St. Louis, plans construction of a pumping plant at Ninth Street and Fourteenth Avenue, Cedar Rapids, Iowa.

In an item published in the March 25 issue of THE IRON AGE, the address of the Viking Pump Co. was given as 406 State Street, Cedar Rapids, Iowa. The correct address is 406 State Street, Cedar Falls, Iowa.

The King Co., 230 South Clark Street, Chicago, manufacturer of cast iron street lighting standards, brackets and newels, whose main plant and general offices have for years been at St. Joseph, Mo., is building a new plant at Sheffield, Ala., to cost about $200,000. When completed it will be, it is said, the largest plant in the United States devoted exclusively to the manufacture of street lighting standards.

Detroit

DETROIT, April 5.

PLANS are under consideration by the Cooper Steel Spring Co., Deerfield, Mich., manufacturer of automobile springs, for enlargements and the installation of additional equipment.

The Michigan Artificial Ice Products Co., 1001 Real Estate Exchange Building, Detroit, George Levy, president, will soon break ground for a one-story cold storage and refrigerating plant addition at Ann Arbor, Mich., 30 x 87 ft., to cost $50,000.

The Department of Public Works, City Hall, Detroit, has filed plans for a one-story steam power house on Mullet Street, to be used as a central heating station, estimated to cost $300,000 with equipment. Donaldson & Meier, Penobscot Building, are architects.

The Jackson Battery Co., Jackson, Mich., recently organized, is establishing a local plant and is said to be planning the early purchase of dies, tools and other machinery.

The Pontiac Corporation, Pontiac, Mich., recently formed with a capital of $36,000, will operate a local plant for the production of radio apparatus and electrical equipment. The output will be handled exclusively by the Jewett Radio & Phonograph Co., Detroit, which will act as selling agent for the company. V. E. Morrison is president of the Pontiac company.

The Berkey & Gay Furniture Co., 448 Monroe Avenue, Grand Rapids, Mich., has awarded a general contract to the Barnes Brothers Construction Co., Grand Rapids, for its proposed six-story addition, 75 x 185 ft., to cost $225,000 with equipment. E. A. Wallace is president.

The Westinghouse Electric & Mfg. Co., East Pittsburgh, is completing plans for the early erection of a factory branch on Trimble Avenue, Detroit, to include service and repair departments, equipment storage and distributing divisions, and other departments. It will be five stories, aggregating 100,000 sq. ft. of floor space, estimated to cost $400,000.

The Holly Machine Tool Co., Holly, Mich., recently organized by Earl Padgett and T. L. Dilley, both of Holly,

plans the operation of a local factory for the manufacture of tools, dies, jigs and kindred products.

The New Egyptian Portland Cement Co., 408 West Fort Street, Detroit, has awarded a general contract to the MacDonald Engineering Co., 53 West Jackson Boulevard, Chicago, for a four-story and basement addition to its mill at Port Huron, Mich., 50 x 70 ft., to cost $200,000 with equipment. John A. Acker, 2306 State Street, Chicago, is engineer. M. D. Smith is president.

The Superior Auto Body Co., Grand Rapids, Mich., has recently acquired a building formerly used by the Haney School Furniture Co., and will remodel for an addition. Machinery will be purchased soon.

The Board of Trustees, Fairmont Hospital, Alamo Avenue, Kalamazoo, Mich., will soon take bids for a two-story power house and mechanical laundry at the institution, 50 x 60 ft., reported to cost $50,000 with equipment. E. S. Patterson, 901 South Westridge Street, is architect.

The Interlocking Cement Stave Silo Co., Imlay City, Mich., has begun to rebuild its plant recently destroyed by fire. Additional machinery will be installed.

E. A. Rice, 662 East Warren Avenue, Detroit, jobber in abrasive materials and grinding wheels, has purchased the property of the Spencer Lumber Co., 9050 Alpine Avenue, which it expects to occupy the first week in April. The removal was made necessary to take care of increased business.

The American Seating Co., Grand Rapids, Mich., will not abandon its branch manufacturing plant at Manitowoc, Wis., as recently announced. The company is planning an enlargement of its Grand Rapids manufacturing facilities to cost upward of $2,000,000. The company's products are seats for schools, churches and theaters.

Cincinnati

CINCINNATI, April 5.

THERE has been a sharp decrease in the volume of machine tool orders the past week. Most local builders also report a falling off in fresh inquiries. Automobile makers continue the leading purchasers of equipment, one plant having bought five 17-in. lathes and several others having closed for a number of shapers. A local machine tool company is figuring on a prospective order for 40 polishing machines, while an inquiry for 60 polishing machines, reported several weeks ago, is still pending. The American Laundry Machinery Co., Cincinnati, has purchased a tool room lathe and two shapers for its Rochester, N. Y., plant and is said to have taken bids on four lathes and several turret lathes. An order for a number of planers, involving an expenditure of approximately $50,000, has been placed by a Detroit manufacturer with the Liberty Machine Tool Co., Hamilton, Ohio. The latter also has booked business totaling $16,000 from a Warren, Ohio, company.

The Cincinnati Planer Co. sold a 24-in. planer in the Chicago territory and a 33-in. machine in the East. The Ramapo Ajax Corporation, Hillburn, N. Y., purchased a frog and switch planer, but has postponed action indefinitely upon two other similar planers for which it recently inquired. A local builder booked four 24-in. lathes for delivery to a Pacific Coast company. Orders have been received locally for a 27-in. lathe for shipment to Honolulu and for two lathes for Mexican delivery. The Phoenix Portland Cement Co., Birmingham, bought a 48-in., 300-ton wheel press and a 600-lb. single frame steam hammer from the Niles-Bement-Pond Co. The Federated Metals Corporation, Brills, N. J., has taken a Long & Allstatter double punching and shearing machine, while the Hande Wrench Co., New Bedford, Mass., bought a 16-in. shaper and a 21-in. drill. The General Paper Mfg. Co., Brooklyn, purchased a 20-in. shaper and E. L. Fraser, Philadelphia, is the buyer of a 16-in. shaper. The Tennessee Coal, Iron & Railroad Co. bought a No. 141 Ransom grinder for delivery to Fairfield, Ala. The John Steptoe Co. sold a 24-in. shaper in Syracuse, N. Y.

In the used machinery market there is a good demand for all kinds of tools. The Niles-Bement-Pond Co. disposed of a large number of machines from its Plainfield, N. J., plant to dealers the past ten days. The Mosler Safe Co., Hamilton, Ohio, bought a 60-in planer and the Babcock & Wilcox Co., Bayonne, N. J., purchased a Pond 8-ft. radial drill.

An addition, 80 x 187 ft., to the plant of the Breese Brothers Co., 2347 Reading Road, Cincinnati, is nearing completion. The building is two stories, of brick and steel, and was made necesary by the greatly increased business of the company. J. E. Breese is president; R. A. Breese, vice-president, and George Morris, secretary.

The Empire Chair Co., Elizabethton, Tenn., has plans under way for a two-story addition, to cost $35,000 with machinery.

The Board of Education, North Baltimore, Ohio, plans the installation of manual training equipment in its proposed new high school to costs $250,000, designed to replace a structure recently destroyed by fire. Walker & Norwick, American Building, Dayton, Ohio, are architects.

The Chattanooga Implement Mfg. Co., East Hemlock Street, Chattanooga, Tenn., will soon begin work on two one-story structures, each about 50 x 175 ft., to cost $60,000 with machinery.

G W. Simmons, 492 Vance Avenue, Memphis, Tenn., has inquiries out for a spindle sander; 30-in. cabinet planer, ball-bearing type, motor-driven; revolving clamp carrier, and other wood-working equipment.

The Cottonseed Products Co., Tiptonville, Tenn., will begin rebuilding the portion of its cottonseed oil mill recently destroyed by fire, with loss estimated at $75,000 including equipment.

Merrill B. Parker, 1912 Oak Street, Chattanooga, Tenn., is said to be in the market for an oil-operated engine, De La Vergne type, about 60 hp., with accessories.

The Ideal Equipment Co., 369 Dublin Avenue, Columbus, Ohio, machinery dealer, has inquiries out for a 350-kw., engine-generator set, 3-phase, 60-cycle, 400 volts; also for a 250-kw. engine-generator set, and two 350-hp. watertube boilers, 180-lb. working pressure, with accessoriess.

The Southern Cities Power Co., Provident Building, Chattanooga, Tenn., is said to have secured a power site on the Duck River, near Lewisburg, Tenn., for a proposed hydro-electric power development, to cost $200,000 with transmission line.

The Ahlers & Gregoire Co., Louisville, operating a coppersmithing plant, is considering plans for rebuilding the portion of the works destroyed by fire March 27, with loss reported at $20,000 including equipment.

New England

BOSTON, April 5.

SOME improvement in machine tool sales is noted, but business is far from brisk and is confined largely to single machines. Used equipment appears in better demand than new. Much of the buying has been by small shops, which explains the relative activity of used tools. The largest individual transaction reported the past week was a shaper, a 12-in. lathe and an upright drill to a local repair shop. Other used tools sold included radial drills, small planers, drill presses, and small lathes. Local houses report a shortage in good used tools.

Small tools continue in good demand. March sales were well in excess of those for the corresponding month last year. Some manufacturers of hoists have advanced prices 10 per cent.

The Bay State Saw & Tool Co., Lake and Main Streets, Winchester, Mass., recently destroyed by fire, is making plans for the resumption of activities. Details are lacking, but new equipment will be required. Edwin P. Bailey is managing director.

The F. A. Day Co., Riverside Avenue and Mellen Street, Bristol, Conn., screw machine products, will, it is reported, shortly let contract for the erection of a two-story, 24 x 74 ft. manufacturing plant. Frederick A. Day is proprietor.

The J. G. White Engineering Corporation, 43 Exchange Place, New York, has prepared sketches for a proposed power plant at Windsor Locks, Conn.

Plans will soon be ready for an addition to the McLaurin-Jones Co., Brookfield, Mass., paper manufacturer, for which miscellaneous equipment will be required. The S. H. Pitcher Co., 44 Front Street, Worcester, Mass., is the engineer.

The Cranston Worsted Mill, 180 Thames St., Bristol, R. I., has closed bids on a four-story, 70 x 100 ft. addition for which motors are required. Jenks & Ballou, 1035 Grosvenor Building, Providence, are the engineers.

The American Soda Fountain Co., 282 Congress Street, Boston, has awarded contract for the erection of a plant at Watertown, Mass. Motors, conveying and miscellaneous equipment are required. Monks & Johnson, 99 Chauncy Street, Boston, are the engineers.

The Gurney Heater Mfg. Co., 96 Arlington Street, Framingham, Mass., has awarded a contract for foundry

Finzer Brothers, Sugarcreek, Tuscarawas Co., have taken bids for additions which will include a manufacturing and other buildings. New work will include a transformer station.

The Board of County Commissioners, Ashtabula, Ohio, has taken bids for the reconstruction of a sewage disposal plant. R. F. McDowell, 1770 East Eleventh Street, Cleveland, is the engineer.

The Barnes Motor Co., Cleveland, will erect a three-story service and sales station on Ivanhoe Road, at an estimated cost of about $125,000.

The Transue & Williams Steel Forging Corporation, Alliance, Ohio, plans the construction of a one-story factory addition, 80 x 240 ft.

Manual training departments will be provided in a high school in Mount Cory, Ohio, I. R. Harris, clerk of the Board of Education; also in a centralized grade and high school in Butler Township, Darke County, Ohio, Charles Bussard, Arcanum, Ohio, president of the Board of Education.

The Akron Foundry Co., 183 North Case Avenue, Akron, Ohio, has been organized to do general jobbing work in gray iron, brass and aluminum castings. It has leased the property formerly occupied by the Banner Foundry Co. J. J. Criswell, for nine years superintendent of the foundry of the Falls Clutch & Machine Co., Cuyahoga Falls, Ohio, is president; J. Hofmann, for 18 years core department foreman for the Falls Clutch & Machine Co., is vice-president, and W. E. Woodward, secretary and treasurer.

Chicago

CHICAGO, April 5.

IN both inquiry and buying the machine tool market is less active. The last two weeks in March were better in volume of sales than the first half of the month, but a large part of the business taken developed quickly and outside of pending railroad lists, little in the way of prospective sales is being carried over into April. Railroads, as usual, are slow in closing lists. The most active list is that of the Illinois Central. Deliveries remain about stationary, but prices are firmer. One prominent manufacturer has announced a 5 per cent advance in the prices of its smaller sizes of shapers.

The A. O. Smith Corporation, Milwaukee, the International Harvester Co., Milwaukee, and the Nash Motors Co., at its Kenosha, Racine and Milwaukee plants, are still interested in various types of tools. The Santa Fe is inquiring for an 18-in. x 10-ft. Le Blond, or equivalent, heavy duty engine lathe, complete with a 440-volt 3-phase 50-cycle motor. Alternate bids are being asked on a 22-in. x 10-ft. and a 24-in. x 10-ft. motor-driven lathe. This railroad is also in the market for a Ransom No. 141, or equivalent, motor-driven double dry grinder, with 24-in. x 3-in. wheels, having a surface speed of 6000 ft. per min. A motor for 440-volt 3-phase 50-cycle current is called for. The Calumet Steel Co., Chicago, has purchased a 20-in. shaper. Used machine tools are moving slowly, but better prices are being realized than in the immediate past and dealers are rather optimistic concerning this branch of the trade.

The Illinois Central Railroad Co., 135 East Eleventh Place, Chicago, has plans for a one-story locomotive repair shop at Burnside, Ill., 165 x 340 ft., to cost $300,000 with equipment. A. J. Blaess is chief engineer.

The George B. Smith Chemical Co., Springfield, Ill., manufacturer of rubber and paint pigments, etc., has plans for an addition to cost about $50,000 with machinery.

Drying Systems, Inc., 11 South Des Plaines Avenue, Chicago, manufacturer of mechanical drying apparatus, has awarded a general contract to the R. & G. Construction Co., 6425 South Park Avenue, for a one-story top addition to the present three-story plant, including improvements in the existing factory, to cost $60,000. F. D. Chase, Inc., 720 North Michigan Avenue, is architect. F. A. Lippert is president and general manager.

The State Department of Administration and Finance, State Capitol, St. Paul, Minn., will soon ask bids on a general contract for a one-story power plant at the State Teachers' College, Duluth, in connection with a four-story institutional building. Both structures are estimated to cost $275,000. C. H. Johnson, Capitol Bank Building, St. Paul, is architect.

The Argo Iron & Metal Co., 1662 Elston Avenue, Chicago, has awarded a general contract to the Schuetz Construction Co., 3620 Kilbourne Street, for a two-story and basement addition to cost $100,000. It will be equipped largely for storage and distributing service.

The Neverslip Tire Chain Co., Boulder National Bank Building, Boulder, Colo., H. H. Donnelly, head, has preliminary plans for a new one-story factory reported to cost $40,000 with equipment

E. M. Klett, Pueblo, Colo., care of P. A. Gray, secretary, Pueblo Commerce Club, and associates are arranging for the establishment of a new company to construct a plant for the manufacture of wire brushes and kindred wire products. It will consist of a two-story and basement structure, 100 x 150 ft., and cost approximately $50,000 with equipment.

The Northeastern Iowa Power & Light Co., Clermont, Iowa, is reported to have preliminary plans for a new steam-operated electric power house at New Hampton, Iowa, to cost about $200,000 with equipment.

The Lemont Refining Co., Lemont, Ill., has begun work on an addition to its local oil refinery and will install equipment to increase the capacity from 1000 to 1500 bbl. per day. J. F. Donnelly is superintendent.

The Chicago Automatic Conveyor Co., 37 West Van Buren Street, Chicago, is reported to be arranging for a new plant at Seventy-fourth Street and Oakley Avenue, to cost $65,000 with equipment.

The C. A. Dunham Co., Marshalltown, Iowa, manufacturer of heating systems and equipment, has awarded contract to the C. F. Reimer Co., 210 West Second Street, for a one-story foundry addition, to be ready for service in about 60 days.

The Roxana Petroleum Corporation, Shell Building, St. Louis, plans construction of a pumping plant at Ninth Street and Fourteenth Avenue, Cedar Rapids, Iowa.

In an item published in the March 25 issue of THE IRON AGE, the address of the Viking Pump Co. was given as 406 State Street, Cedar Rapids, Iowa. The correct address is 406 State Street, Cedar Falls, Iowa.

The King Co., 230 South Clark Street, Chicago, manufacturer of cast iron street lighting standards, brackets and newels, whose main plant and general offices have for years been at St. Joseph, Mo., is building a new plant at Sheffield, Ala., to cost about $200,000. When completed it will be, it is said, the largest plant in the United States devoted exclusively to the manufacture of street lighting standards.

Detroit

DETROIT, April 5.

PLANS are under consideration by the Cooper Steel Spring Co., Deerfield, Mich., manufacturer of automobile springs, for enlargements and the installation of additional equipment.

The Michigan Artificial Ice Products Co., 1001 Real Estate Exchange Building, Detroit, George Levy, president, will soon break ground for a one-story cold storage and refrigerating plant addition at Ann Arbor, Mich., 30 x 87 ft., to cost $50,000.

The Department of Public Works, City Hall, Detroit, has filed plans for a one-story steam power house on Mullet Street, to be used as a central heating station, estimated to cost $300,000 with equipment. Donaldson & Meier, Penobscot Building, are architects.

The Jackson Battery Co., Jackson, Mich., recently organized, is establishing a local plant and is said to be planning the early purchase of dies, tools and other machinery.

The Pontiac Corporation, Pontiac, Mich., recently formed with a capital of $36,000, will operate a local plant for the production of radio apparatus and electrical equipment. The output will be handled exclusively by the Jewett Radio & Phonograph Co., Detroit, which will act as selling agent for the company. V. E. Morrison is president of the Pontiac company.

The Berkey & Gay Furniture Co., 448 Monroe Avenue, Grand Rapids, Mich., has awarded a general contract to the Barnes Brothers Construction Co., Grand Rapids, for its proposed six-story addition, 75 x 185 ft., to cost $225,000 with equipment. E. A. Wallace is president.

The Westinghouse Electric & Mfg. Co., East Pittsburgh, is completing plans for the early erection of a factory branch on Trimble Avenue, Detroit, to include service and repair departments, equipment storage and distributing divisions, and other departments. It will be five stories, aggregating 100,000 sq. ft. of floor space, estimated to cost $400,000.

The Holly Machine Tool Co., Holly, Mich., recently organized by Earl Padgett and T. L. Dilley, both of Holly,

plans the operation of a local factory for the manufacture of tools, dies, jigs and kindred products.

The New Egyptian Portland Cement Co., 408 West Fort Street, Detroit, has awarded a general contract to the MacDonald Engineering Co., 53 West Jackson Boulevard, Chicago, for a four-story and basement addition to its mill at Port Huron, Mich., 50 x 70 ft., to cost $200,000 with equipment. John A. Acker, 2306 State Street, Chicago, is engineer. M. D. Smith is president.

The Superior Auto Body Co., Grand Rapids, Mich., has recently acquired a building formerly used by the Haney School Furniture Co., and will remodel for an addition. Machinery will be purchased soon.

The Board of Trustees, Fairmont Hospital, Alamo Avenue, Kalamazoo, Mich., will soon take bids for a two-story power house and mechanical laundry at the institution, 50 x 60 ft., reported to cost $50,000 with equipment. E. S. Patterson, 901 South Westridge Street, is architect.

The Interlocking Cement Stave Silo Co., Imlay City, Mich., has begun to rebuild its plant recently destroyed by fire. Additional machinery will be installed.

E. A. Rice, 662 East Warren Avenue, Detroit, jobber in abrasive materials and grinding wheels, has purchased the property of the Spencer Lumber Co., 9050 Alpine Avenue, which it expects to occupy the first week in April. The removal was made necessary to take care of increased business.

The American Seating Co., Grand Rapids, Mich., will not abandon its branch manufacturing plant at Manitowoc, Wis., as recently announced. The company is planning an enlargement of its Grand Rapids manufacturing facilities to cost upward of $2,000,000. The company's products are seats for schools, churches and theaters.

Cincinnati

CINCINNATI, April 5.

THERE has been a sharp decrease in the volume of machine tool orders the past week. Most local builders also report a falling off in fresh inquiries. Automobile makers continue the leading purchasers of equipment, one plant having bought five 17-in. lathes and several others having closed for a number of shapers. A local machine tool company is figuring on a prospective order for 40 polishing machines, while an inquiry for 60 polishing machines, reported several weeks ago, is still pending. The American Laundry Machinery Co., Cincinnati, has purchased a tool room lathe and two shapers for its Rochester, N. Y., plant and is said to have taken bids on four lathes and several turret lathes. An order for a number of planers, involving an expenditure of approximately $50,000, has been placed by a Detroit manufacturer with the Liberty Machine Tool Co., Hamilton, Ohio. The latter also has booked business totaling $16,000 from a Warren, Ohio, company.

The Cincinnati Planer Co. sold a 24-in. planer in the Chicago territory and a 33-in. machine in the East. The Ramapo Ajax Corporation, Hillburn, N. Y., purchased a frog and switch planer, but has postponed action indefinitely upon two other similar planers for which it recently inquired. A local builder booked four 24-in. lathes for delivery to a Pacific Coast company. Orders have been received locally for a 27-in. lathe for shipment to Honolulu and for two lathes for Mexican delivery. The Phoenix Portland Cement Co., Birmingham, bought a 48-in., 300-ton wheel press and a 600-lb. single frame steam hammer from the Niles-Bement-Pond Co. The Federated Metals Corporation, Brills, N. J., has taken a Long & Allstatter double punching and shearing machine, while the Hande Wrench Co., New Bedford, Mass., bought a 16-in. shaper and a 21-in. drill. The General Paper Mfg. Co., Brooklyn, purchased a 20-in. shaper and E. L. Fraser, Philadelphia, is the buyer of a 16-in. shaper. The Tennessee Coal, Iron & Railroad Co. bought a No. 141 Ransom grinder for delivery to Fairfield, Ala. The John Steptoe Co. sold a 24-in. shaper in Syracuse, N. Y.

In the used machinery market there is a good demand for all kinds of tools. The Niles-Bement-Pond Co. disposed of a large number of machines from its Plainfield, N. J., plant to dealers the past ten days. The Mosler Safe Co., Hamilton, Ohio, bought a 60-in planer and the Babcock & Wilcox Co., Bayonne, N. J., purchased a Pond 8-ft. radial drill.

An addition, 80 x 187 ft., to the plant of the Breese Brothers Co., 2347 Reading Road, Cincinnati, is nearing completion. The building is two stories, of brick and steel, and was made necesary by the greatly increased business of the company. J. E. Breese is president; R. A. Breese, vice-president, and George Morris, secretary.

The Empire Chair Co., Elizabethton, Tenn., has plans under way for a two-story addition, to cost $35,000 with machinery.

The Board of Education, North Baltimore, Ohio, plans the installation of manual training equipment in its proposed new high school to costs $250,000, designed to replace a structure recently destroyed by fire. Walker & Norwick, American Building, Dayton, Ohio, are architects.

The Chattanooga Implement Mfg. Co., East Hemlock Street, Chattanooga, Tenn., will soon begin work on two one-story structures, each about 50 x 175 ft., to cost $60,000 with machinery.

G W. Simmons, 492 Vance Avenue, Memphis, Tenn., has inquiries out for a spindle sander; 30-in. cabinet planer, ball-bearing type, motor-driven; revolving clamp carrier, and other wood-working equipment.

The Cottonseed Products Co., Tiptonville, Tenn., will begin rebuilding the portion of its cottonseed oil mill recently destroyed by fire, with loss estimated at $75,000 including equipment.

Merrill B. Parker, 1912 Oak Street, Chattanooga, Tenn., is said to be in the market for an oil-operated engine, De La Vergne type, about 60 hp., with accessories.

The Ideal Equipment Co., 369 Dublin Avenue, Columbus, Ohio, machinery dealer, has inquiries out for a 350-kw., engine-generator set, 3-phase, 60-cycle, 400 volts; also for a 250-kw. engine-generator set, and two 350-hp. watertube boilers, 180-lb. working pressure, with accessories.

The Southern Cities Power Co., Provident Building, Chattanooga, Tenn., is said to have secured a power site on the Duck River, near Lewisburg, Tenn., for a proposed hydroelectric power development, to cost $200,000 with transmission line.

The Ahlers & Gregoire Co., Louisville, operating a coppersmithing plant, is considering plans for rebuilding the portion of the works destroyed by fire March 27, with loss reported at $20,000 including equipment.

New England

BOSTON, April 5.

SOME improvement in machine tool sales is noted, but business is far from brisk and is confined largely to single machines. Used equipment appears in better demand than new. Much of the buying has been by small shops, which explains the relative activity of used tools. The largest individual transaction reported the past week was a shaper, a 12-in. lathe and an upright drill to a local repair shop. Other used tools sold included radial drills, small planers, drill presses, and small lathes. Local houses report a shortage in good used tools.

Small tools continue in good demand. March sales were well in excess of those for the corresponding month last year. Some manufacturers of hoists have advanced prices 10 per cent.

The Bay State Saw & Tool Co., Lake and Main Streets, Winchester, Mass., recently destroyed by fire, is making plans for the resumption of activities. Details are lacking, but new equipment will be required. Edwin P. Bailey is managing director.

The F. A. Day Co., Riverside Avenue and Mellen Street, Bristol, Conn., screw machine products, will, it is reported, shortly let contract for the erection of a two-story, 24 x 74 ft. manufacturing plant. Frederick A. Day is proprietor.

The J. G. White Engineering Corporation, 43 Exchange Place, New York, has prepared sketches for a proposed power plant at Windsor Locks, Conn.

Plans will soon be ready for an addition to the McLaurin-Jones Co., Brookfield, Mass., paper manufacturer, for which miscellaneous equipment will be required. The S. H. Pitcher Co., 44 Front Street, Worcester, Mass., is the engineer.

The Cranston Worsted Mill, 180 Thames St., Bristol, R. I., has closed bids on a four-story, 70 x 100 ft. addition for which motors are required. Jenks & Ballou, 1035 Grosvenor Building, Providence, are the engineers.

The American Soda Fountain Co., 282 Congress Street, Boston, has awarded contract for the erection of a plant at Watertown, Mass. Motors, conveying and miscellaneous equipment are required. Monks & Johnson, 99 Chauncy Street, Boston, are the engineers.

The Gurney Heater Mfg. Co., 96 Arlington Street, Framingham, Mass., has awarded a contract for foundry

improvements. Lockwood, Greene & Co., 24 Federal Street, Boston, are the engineers.

The New England Power Co., Worcester, Mass., has acquired property of the International Paper Co., at Bellows Falls, Vt., known as the Fall Mountain Mills, and will dismantle to make way for a proposed new power plant. It will be equipped for an initial capacity of 45,000 hp. A transmission system will be built.

The John E. Hayford Co., Newton, N. H., manufacturer of automobile bodies, is removing its plant to the Ira J. Webster factory on Vila Street, Haverhill, Mass., where about 30,000 sq. ft. of floor space has been secured under lease. The capacity will be increased.

The Norfolk Iron Co., 33 Newport Avenue, Quincy, Mass., has plans for a new one-story plant at Norfolk Downs, 75 x 150 ft., to cost $50,000 with equipment.

Philip B. Gale, president Standard Screw Co., Capitol Avenue, Hartford, Conn., and associates have organized the Sesamee Co., capitalized at $500,000, to manufacture keyless locks. Production has been started in a portion of the plant of the Standard Screw Co. and arrangements will be made for larger output. Others connected with the new company are Douglas H. Thomson and A. G. Hatch, both of Hartford, the latter being the inventor of the company's specialties.

The Bassick Co., Warren and Austin Streets, Bridgeport, Conn., manufacturer of furniture casters and hardware specialties, has taken bids for a one-story brass foundry, 100 x 120 ft., and two-story extension for general service, 20 x 80 ft. Fletcher-Thompson, Inc., 542 Fairfield Avenue, is architect.

The Department of Public Works, Bristol, Conn., has filed plans for a one-story mechanical and service building for the water bureau, comprising tool room, meter department, service and garage department for municipal motor trucks and cars, estimated to cost $35,000.

The Archer-Strauss Rubber Co., Herbert Street, Framingham, Mass., has completed plans for a one and two-story addition, 110 x 195 ft., to cost about $90,000. Lockwood, Greene & Co., 24 Federal Street, Boston, are architects and engineers.

The American Car & Foundry Motor Co., 165 Broadway, New York, recently formed as a subsidiary of the American Car & Foundry Co., same address, to manufacture motor buses, etc., will take over the Brightwood plant, Springfield, Mass., of the J. G. Brill Co., Philadelphia, one of the units of the company. The new owner proposes to keep the branch in active operation, giving employment to about 100 men.

The Novelty Mfg. Co., Milford, Mass., has been incorporated with a capital of $50,000 to manufacture automobile jacks and kindred products. It is occupying property at 26 Granite Street, but plans are under way for the purchase or lease of a larger building for increased output. Joseph Abbiusso is president, and Rudolph Mainini, treasurer.

The Cameron Avenue Garage, Inc., 40 Cottage Street, Chelsea, Mass., will proceed with the erection of a one-story service, repair and garage building, 195 x 230 ft., at Cambridge, Mass., to cost $100,000 with equipment.

Stockholders of the Electric Auto-Lite Co., Toledo, Ohio, have approved the purchase of the starting, lighting and battery ignition divisions of the American Bosch Magneto Corporation, Springfield, Mass., and the property will be transferred at an early date. Equipment at the Cambridge and Amesbury, Mass., plants, operated under the name of Gray & Davis, Inc., will be removed to other locations. These factories will remain the property of the selling company and will be disposed of in the near future. The American Bosch company will continue the manufacture of magnetos and kindred specialties.

The General Plate Co., Attleboro, Mass., manufacturer of jewelers' plate, etc., has preliminary plans for a two-story addition, 50 x 210 ft., to cost $130,000 with machinery.

Pacific Coast

SAN FRANCISCO, March 31.

PRELIMINARY plans have been authorized by the Puget Sound Light & Power Co., Seattle, for a one-story equipment repair and service building, with machine shop, meter shop and other departments, to cost $175,000 with machinery.

The Boeing Airplane Co., 330 West Front Street, Seattle, has awarded a general contract to the Austin Co., for a one-story machine shop to cost about $21,000.

The Zellerbach Paper Co., Seattle, has awarded a general contract to Peter Gjarde, Lyon Building, for a branch plant at 1254-64 First Avenue, South, estimated to cost $130,000. It will be equipped largely for storage and distributing service. Headquarters are at Sacramento, Cal.

The Cactus Mfg. Co., Los Angeles, manufacturer of rubber products, has acquired property on Furnace Street, Akron, Ohio, for an Eastern branch plant, totaling about 15,000 sq. ft. of floor space. M. M. Galvin is general superintendent.

The Board of Education, Los Angeles, has plans under way for a one-story manual training shop at the Warren G. Harding high school, to be 40 x 160 ft., estimated to cost $30,000. N. W. Alpaugh, 2404 West Seventh Street, is architect.

The Board of County Supervisors, Hall of Records, Los Angeles, is asking bids until April 19 for a motor-driven centrifugal pump with accessories, for installation at the County farm, near Downey.

The Western Pipe & Steel Co., San Francisco, has concluded an agreement with the East Jersey Pipe Co., New York, to manufacture lock-bar pipe for Pacific Coast trade, and will arrange facilities at its plant to carry out production. Manufacture will be under the patents of the East Jersey company.

The Grays Harbor Pulp Mill Co., Aberdeen, Wash., care of W. E. Johnson, secretary, Aberdeen Chamber of Commerce, is said to be planning for a new pulp and paper mill, to cost approximately $1,000,000 with equipment.

The State Department of Business Control, Olympia, Wash., Olaf L. Olsen, director, will ask bids soon for a pumping plant and other waterworks equipment for a proposed system at the Northern State hospital, Sedro-Woolley, estimated to cost $100,000.

The Griffin Wheel Co., 410 North Michigan Boulevard, Chicago, manufacturer of railroad car wheels, bolsters, etc., is reported to be arranging for a new plant at Salt Lake City, Utah, to cost about $100,000 with equipment. Details will be arranged by the engineering department at Chicago.

The Pacific Gas Radiator Co., 7541 Roseberry Street, Los Angeles, has just completed an extension which provides 50,000 additional sq. ft. of floor space to the plant. J. A. Hartfield is president.

The city of Downey, Cal., is planning to build a manuel training school, to cost $30,000. It will be two stories, 45 x 120 ft. and will contain wood-working and automobile shops.

Gulf States

BIRMINGHAM, April 5.

PLANS are being considered by the New Orleans Public Service, Inc., New Orleans, for an addition to its steam-operated electric power plant to increase the capacity about 30,000 kw. The work will be carried out in connection with a 1926 expansion program.

J. Thomson & Brother, 233 Rampart Street, New Orleans, manufacturers of automobile bodies, wagons, etc., have filed plans for their proposed five-story plant on Gravier Street, estimated to cost $90,000 with equipment.

The Southeastern Power & Light Co., Birmingham, operating the Alabama Power Co., Birmingham; Mississippi Power Co., Gulfport, Miss., and other electric light and power properties, is disposing of a preferred stock issue to total $7,880,000, a portion of the fund to be used for the purchase of a controlling interest in the Georgia Railway & Power Co., Atlanta, Ga., and for extensions and improvements in power plants and system. Thomas W. Martin is president.

The Holcroft & Simpson Co., Wynona, Okla., is considering the construction of a new ice-manufacturing plant at Panhandle, Tex., with capacity of about 200 tons per day, estimated to cost $175,000 with equipment.

The Montray Corporation, 224 Calumet Building, Miami, Fla., has inquiries out for machinery for lime manufacture for installation in a proposed local mill.

The Phillips Petroleum Co., Bartlesville, Okla., has begun the construction of a new casinghead gasoline refinery in the Panhandle field, near Amarillo, Tex., to be equipped for a capacity of 70,000 gal. per day, estimated to cost close to $1,000,000.

The Pinellas Ice & Cold Storage Co., Largo, Fla., will soon begin superstructure for a proposed local ice-manufacturing plant, with initial output of 60 tons per day, to cost $90,000 with machinery. Equipment will be electrically-operated.

The Mississippi Power Co., Gulfport, Miss., is arranging a construction and improvement program to cost upward of $50,000,000, including the construction of a hydro-electric generating plant on the Tennessee River, near the Mississippi-Alabama State line, below Muscle Shoals, with ultimate investment estimated at $20,000,000; installation of steel tower transmission lines for more than 500 miles;

new power substations and other expansion work. Barney Eaton is president.

The Board of Port Commissioners, New Court Building, New Orleans, is asking bids until April 20 for a marine leg unloader at the Stuvesant docks, including substructure, conveyor galleries, conveyor machinery, etc., as per plans at the office of the supervisor of purchases, 500 Camp Street.

The Gulf, Colorado & Santa Fe Railroad Co., Galveston, Tex., has awarded a general contract to Anderson Brothers, El Paso, Tex., for six one-story buildings at its shops at Cleburne, Tex., on a bid of $205,000. The structures will include boiler and blacksmith shops, flue shop, iron and pipe storage building, pattern shop, switchboard building, and flue storage house, to cost about $500,000 with equipment.

The Bonita Building & Lumber Co., Keystone Building, Houston, Tex., is considering the purchase of a quantity of wood-working machinery for installation in a local plant.

The Liquid Carbonic Co., 24 South Newnan Street, Jacksonville, Fla., manufacturer of soda fountain equipment and supplies, has plans for the immediate construction of a new one-story plant, 100 x 175 ft., to cost $60,000 with machinery. Headquarters are at 3100 South Kedzie Avenue, Chicago.

The Standard Brass Mfg. Co., Port Arthur, Tex., has awarded a general contract to the Truscon Steel Co., Youngstown, Ohio, for its proposed one-story machine shop, 50 x 112 ft., and will purchase equipment at an early date, to include turret lathe, shaper, drill press, foundry equipment, trolley system, etc. H. J. LeBlanc is manager.

The Prairie Pipe Line Co., Coleman, Tex., plans the construction of a pumping plant in the Dibrell oil field, near Coleman, with a new pipe line from Pioneer, Tex. The entire project will cost close to $500,000 with equipment.

Giescke & Harris, 207 West Seventh Street, Austin, Tex., architects, have plans under way for a four-story automobile service, repair and garage building, 80 x135 ft., with wing, 45 x 160 ft., at Seventh and Colorado Streets, estimated to cost $130,000.

The Texas Utilities Co., Lubbock, Tex., is completing plans for an expansion and improvement program to cost close to $1,000,000. The work will include the erection of a one-story steam-operated electric power plant, 105 x 145 ft., to cost approximately $300,000. Transmission lines will be built.

The Florida East Coast Septic Tank Co., Delray, Fla., a subsidiary of the American Sanitary Sewerage Corporation, Miami, Fla., has purchased property on Lowry Avenue, and plans the erection of a new one-story plant for the manufacture of septic tanks and kindred apparatus, to cost $30,000. Lee M. Pierce is general manager.

The M. & H. Valve Co. has completed its new plant at Anniston, Ala., and is placing it in operation.

Milwaukee

MILWAUKEE, April 5.

JUDGING by new business which is developing for machine shops and foundries in this territory, the immediate future of machine-tool business is as promising as it has been for the past six to 12 months. The apparent let-down in buying by automotive shops is accepted merely as meaning that the industry has caught up on immediate requirements relating to enlarged production. Local and nearby machine shops are furnishing dealers with a considerable volume of business and the movement of used equipment is somewhat better than it has been for a month or two.

The Journal Co., Fourth and State Streets, Milwaukee, publisher, has let the general contract to W. W. Oeflein, Inc., 86 Michigan Street, local, for the construction of a $100,000 garage and service building, 150 ft. sq. It is to be used for storing and servicing its commercial and passenger cars and will contain a fully-equipped shop, about 50 x 75 ft. The consulting engineer is Charles S. Whitney, 214 Mason Street. Leonard L. Bowyer is business manager of the Journal Co.

The M. J. Skubal Co., 149-153 Clinton Street, Milwaukee, has let the general contract to the Milwaukee Bridge Co. for the construction of a new welding and general machine and repair shop, 70 x 100 ft., part two stories and basement, to cost $45,000 completely equipped. E. A. Anheuser is president and treasurer.

The Village Board of Trustees, Owen, Wis., expects to call for bids about May 1 for the construction and equipment of a municipal water works system and sewage disposal plant, estimated to cost about $50,000. Plans are being completed by McMahon & Clark, consulting engineers, Menasha and Rhinelander, Wis.

Frank Russell, Platteville, Wis., conducting a general machine and repair shop, has engaged Henry Kleinhammer, local architect, to prepare plans for a new shop, 40 x 110 ft., and office building, 20 x 30 ft., and expects to take bids about April 15. The investment will be about $30,000 in all.

The Milwaukee Storage Co., 412 Jefferson Street, Milwaukee, has placed the general contract with W. W. Oeflein, Inc., 86 Michigan Street, local, for the construction of a $150,000 cold storage and general warehouse, 60 x 120 ft., five stories and basement, at South Water and Park Streets. Bernard Schuman, 10 North Clark Street, Chicago, is president. The architects are Leenhouts & Guthrie, Milwaukee.

The Village Board, Gillett, Wis., has authorized an appropriation of $80,000 for the construction and equipment of a municipal waterworks and sewage system and has engaged McMahon & Clark, consulting engineers, Menasha and Rhinelander, Wis., to plan and supervise the entire work. Contracts will be let late in April.

Bids for the construction of the first unit of the new brass foundry and machine shop of the Loeffelholz Co., 170 Clinton Street, will be taken beginning April 8 by H. C. Haeuser, architect, 445 Milwaukee Street, Milwaukee. The initial part of a project calling for the entire replacement of the present foundry will cost $75,000, and the total investment will be about $200,000. George B. Miller is manager.

The Board of Education, Waukesha, Wis., will close bids April 10 for the erection of the first unit of a new junior high and vocational school, to cost $250,000 and consist of two units. Plans are by Parkinson & Dockendorff, architects, La Crosse, Wis. Edward R. Estberg is chairman of the board.

The Fort Atkinson, Wis., Board of Education has engaged Parkinson & Dockendorff, architects, La Crosse, Wis., to design a new junior high and vocational school, costing about $125,000, which is to replace the structure destroyed by fire recently. J. F. Schreiner is secretary of the board.

Pittsburgh

PITTSBURGH, April 5.

PRELIMINARY plans are under consideration by the Pennsylvania Railroad, Pennsylvania Station, Pittsburgh, for rebuilding the portion of its shops at Pitcairn, Pa., destroyed by fire April 2, with loss reported at $175,000. The damage included the car, locomotive, airbrake and tinplate shops.

The Enterprise Stamping Co., Chambers Street, McKees Rocks, Pa., has asked bids on general contract for a two-story and basement addition, 120 x 275 ft., for general production, storage and distributing service, to cost $70,000. J. H. Phillips, P. O. Box 977, Pittsburgh, is architect.

The Forged Steel Wheel Co., Butler, Pa., operated by the Columbia Steel Co., Pittsburgh, has contracted with the West Penn Power Co., Pittsburgh, for power supply for its mill, which will be electrified in different departments. The load will approximate 20,000 hp. A power substation will be constructed at the plant by the West Penn company.

The Hookless Fastener Co., Cottage and Cherry Streets, Meadville, Pa., manufacturer of metal specialties, has plans under way for a new four-story factory, 60 x 500 ft., to cost about $200,000 with equipment. Lewis Walker is president.

In connection with its plant expansion program, the Rosedale Coal Co., Monongahela Building, Morgantown, W. Va., plans the installation of machinery to increase the output from 1000 to 2000 tons per day at its Maidsville, W. Va., mines. Haulage and conveying equipment will be installed. C. H. Humphreys is general manager.

The Kelly Axe & Tool Co., Charleston, W. Va., has applied for permission to extend its loading plant on the Monongahela River at Glassport, Pa., including the installation of additional handling equipment.

The Bright Bumper Mfg. Co., New Castle, Pa., is being organized by local interests to construct a plant for the manufacture of automobile bumpers. A site has been selected and plans will soon be drawn for the initial works, estimated to cost $25,000. The company will be capitalized at $35,000.

The Board of Trustees, Allegheny General Hospital, Stockton Avenue, Northside, Pittsburgh, plans the construction of a power house with modern coal-handling plant at its proposed new institutional buildings on North Avenue, Northside. A mechanical laundry will also be installed. The entire project will cost $5,000,000. York & Sawyer, 100 East Forty-second Street, New York, are the architects.

The Brockway Clay Co., recently formed to manufacture vitrified sewer pipe, drain tile, etc., will operate at Brockwayville, Jefferson County, Pa., recently incorrectly noted as Brockway. Plans for new works are nearing completion.

The Stoneboro & Chautauqua Lake Ice Co., Oil City, Pa., has acquired the property and business of the Franklin Ice Co., Franklin, Pa., heretofore operated by Fred W. Shaffer. Extensions are planned. A site has also recently been purchased on Thirteenth Street for a new ice-manufacturing plant.

The E. C. Bastable Co., Inc., South Braddock Avenue and Kensington Street, Pittsburgh, has been incorporated with capital stock of $600,000 to manufacture the Calleson two-head, six-head and nine-head high pressure syruping, filling and crowning machines and the Calleson crowners, the company having purchased the patent and manufacturing rights for these machines from the New Process Cork Co., Brooklyn. The E. C. Bastable Co. has equipped a plant and manufacturing operations have begun.

The Banks-Miller Supply Co., Huntington, W. Va., is in the market for one second-hand double end motor-driven cold riveting machine, 12-in. throat, 4-in. stroke, to set three ¾-in. rivets at one stroke; frame to be made of semi-steel; motor 240 volt, 3 phase, 60 cycle.

Canada

TORONTO, April 5.

DEMAND for machine tools is maintained at a fairly high level, due to many industrial interests putting their plants in shape for increased and more economical operation. The placing of orders by Canadian railroads has also stimulated sales. The Steel Co. of Canada, Ltd., with head office at Hamilton, Ont., is building additions to its Hamilton and Montreal plants for which considerable equipment will be needed. The automotive industry is one of the principal sources of demand at present, but orders are chiefly for replacement as very little new construction work is under way in connection with automobile manufacturing plants, although the General Motors Corporation, Oshawa, Ont., is building an addition and installing some new equipment. The Canadian machine tool market as a whole is holding a better position today than it has for the past five years.

A. E. Wheeler, 25 Broadway, New York, is preparing plans for a $3,000,000 smelter at Rouyn, Que., for the Noranda Mines, Ltd., Keefer Building, Montreal.

E. G. M. Cape & Co., 10 Cathcart Street, Montreal, has the general contract for an addition to the plant of the Northern Electric Co., 121 Shearer Street, Montreal. A number of subcontracts have also been awarded.

The Central Casket Co., Ltd., 1515 Davenport Road, Toronto, has awarded a general contract to the H. A. Wickett Co., Ltd., 127 Front Street East, for the erection of new factory.

E. P. Cash, 33 Catharine Street, St. Thomas, Ont., has been awarded general contract for an addition to the foundry of the Canada Iron Foundries, 1000 Talbot Street. Equipment will be purchased later.

The Spanish River Pulp & Paper Mills Co., Ltd., Huron Street, Sault Ste. Marie, Ont., proposes to build a coal pressing plant to cost $100,000.

The Rolland Paper Co., St. Jerome, Que., expects to spend $100,000 on additions to its plant during the summer.

Bowman & Cullerne, 606 Yorkshire Building, Vancouver, B. C., have prepared plans for a new factory for the Auto Radiator & Lamp Co., 551 Seymour Street.

Foreign

THE Amtorg Trading Corporation, 165 Broadway, New York, has announced that the Russian Soviet Government is arranging to use American Diesel locomotives on the different railroad lines. It is understood that other American railroad equipment will be purchased. The Amtorg company is the official purchasing agency for the Soviet Government in the United States.

The Department of Public Works, Santo Domingo, Dominican Republic, is completing plans for a new municipal aqueduct system and waterworks, authorized by the Dominican Government, to include the installation of power equipment, pumping machinery, gate valves and other machinery. Purchases will be made soon. Information on file at the office of the Bureau of Foreign and Domestic Commerce, Washington, reference No. 202186; also, at the American Consulate, Santo Domingo, James J. Murphy, Jr., consul.

The United Steel Works of Burbach-Eich-Dudelange, known as "Arbed," Grand Duchy of Luxemburg, is disposing of a bond issue in the United States, under the direction of the Guaranty Trust Co. of New York, 140 Broadway, totaling $10,000,000, the proceeds to be used for extensions and improvements in the main and subsidiary plants of the company, including the installation of additional machinery. G. Barbanson is president of the board of directors.

The Iberio del Nitrogeno, Ltd., Felguera, Spain, has been granted a loan by the Spanish Government, totaling about $420,000, for extensions and improvements in its metallurgical and nitrogen works, including the installation of additional equipment. Like expansion will also be carried out at the company works at Tarragona, Spain.

The Mannesmann Tube Co., Duesseldorf, Germany, manufacturer of seamless steel tubing and the largest producer in such line in that country, has secured a loan of $5,000,000, from the American & Continental Corporation, an affiliation of the International Acceptance Bank, Inc., 52 Cedar Street, New York, and is said to be planning to use a portion of the fund for extensions and betterments in plants, including the installation of additional equipment.

Industrial News Notes

The export department of the Black & Decker Mfg. Co., Towson, Md., under the direction of E. D. Allmendinger, export manager, secured a total business on electric tools in 1925 171 per cent in excess of the total business of 1924. Figures for the first three months of 1926 indicate that a gain of approximately 60 per cent will be made this year over the business of 1925.

The Northern Engineering Works, Detroit, manufacturer of electric traveling cranes, hoists and foundry equipment, announces an extensive development in the last named department. Aside from the company's district offices in large cities, extensive representation has been established at central points throughout the country, from which it is believed better contact and service will be secured. The company continues to manufacture on a large scale the Standart-ized 5 and 10-ton cranes, as well as larger capacities, which are especially adaptable to foundry service, and has recently brought out a new electric hoist, called the "Hi-Lift," which rounds out its line of cranes and hoists, where building conditions present limited head-room clearances and the maximum of hook movement is required.

The Lily Foundry Co., Los Angeles, recently opened a new factory on a 5-acre tract at East Twenty-sixth Street, near Downey Road, for the manufacture of plumbers' cast iron and enamelware supplies. About 60 people are employed.

The Los Angeles branch of the General Electric Co. has completed the concentration of all its departments in a newly constructed group of buildings at 5201 Santa Fe Avenue, comprising 60,000 sq. ft. of floor space. Previously the company's business was handled through five different units throughout the city. Enough land has been acquired at the new location to permit further expansion under the single unit plan. S. E. Gates is manager of the Los Angeles office.

The Patterson Tool & Supply Co., dealer in machinery, tools and supplies, Dayton, Ohio, states that there is no truth in the current story that it is affiliated with one of its local competitors in that city.

The Triplex Machine Tool Co., 50 Church Street, New York, now represents the following makers of machine tools: B. C. Ames Co., Waltham, Mass.; Oesterlein Machine Co., Cincinnati; Hannifin Mfg. Co., Chicago; Hall Planetary Thread Milling Co., Philadelphia; Bicknell Thomas Co., Greenfield, Mass.; A. C. Campbell, Inc., Nibbling Machine Co., Bridgeport; Kent Owens Machine Co., Toledo, Ohio; Flather Co., Nashua, N. H.; R. Y. Ferner Co., Washington; Sibley Machine Co., South Bend, Ind.; Losbough-Jordon Machine Co., Elkhart, Ind.; Steel Products Engineering Co., Springfield, Ohio.

The Boston Gear Works Sales Co., Norfolk Downs, Mass., will be an exhibitor at the International Textile Machinery Exposition to be held in Boston in April. The company's exhibit will feature standardized gears, metal and non-metallic, as well as standardized speed reducers and Renold-Boston silent chain drives.

The Roberts Brass Mfg. Co., Detroit, has acquired exclusive manufacturing and sales rights in the United States for the Kelch ventilating heater.

The Rollway Bearing Co., Inc., Syracuse, N. Y., manufacturer of heavy-duty roller bearings for radial and thrust loads, has made the following changes in the sales force: C. A. Call, formerly assistant sales manager, Gurney Ball

Bearing Co., has been appointed sales manager; E. J. Lybert, formerly representing the Rollway company in the Philadelphia district, takes charge of the Detroit district; J. D. Firmin, for many years associated with the engineering department of Niles-Bement-Pond Co., is now engineering representative in the Philadelphia district; W. E. Smith has been transferred from the home office to the Youngstown district, where he will assist Samuel Farrell, district representative; S. J. Kaiser continues to represent the company in the Chicago territory.

At the annual stockholders' meeting of the Wheeling Machine Products Co., Wheeling, W. Va., on March 30, the following directors and officers were reelected: E. W. Krause, president and treasurer; Alfred Briese, vice-president and production manager; A. C. Kennen, secretary.

The American Manganese Bronze Co., Philadelphia, has consolidated its organization under one management. T. H. Addie, formerly vice-president and treasurer, has been elected president and general manager. Mr. Addie has been an officer of the company since 1914, and is well known to the bronze foundry trade, not only as a business man but as a metallurgical engineer. The company caters to the shipping trade as designer and builder of propeller wheels, having had the United States Shipping Board contract for the past two years. Water turbine-runners are another specialty. Bronze castings and forgings for engineering purposes include items in the chemical trade. The company has worked on acid corrosion problems, having several special acid-resisting alloys and a new acid valve.

Watson Brothers Steel Co., 2001 Vulcan Street, Detroit, has completed an addition to the plant which more than doubles its size. The company is carrying a warehouse stock of black and galvanized sheets and automobile body sheets and, as a selling organization, operates throughout the state. It has been in business a little more than two years.

The Blystone Mfg. Co., Cambridge Springs, Pa., has decided to enlarge the scope of its business by the addition of a steel plate department. It has added the necessary equipment for the fabrication of dredge pipe, charging boxes, smoke stacks, hoppers and bins, chutes and trays, welded and riveted tanks and receivers, and smoke connections and breechings. The department will be in charge of E. P. Cullum as general manager and Louis C. Zimmerman as director of production. Both men formerly were identified with the Phoenix Iron Works, Meadville, Pa. Mr. Cullum was with that company for 33 years and served as secretary and treasurer for 25 years. He enjoys a wide acquaintance in the iron and steel industry, having been for several years a boiler and engine salesman and later a buyer of pig iron and steel for the Phoenix Iron Works. Mr. Zimmerman had long experience in directing the plate fabricating department of that company.

The State Line Generating Co., a subsidiary of the Insull public utility interests, has been incorporated at Indianapolis. Its plant, to be erected in the northern Indiana or Calumet industrial district, will cost $100,000,000. It is planned to have the first unit completed by 1929. The initial generating capacity will be 200,000 kw.; when all units are completed the capacity will be 1,000,000 kw. This new company will be a producer and wholesaler of electricity, and its customers will be its stockholders, which are five of the larger Insull power companies. Directors of the new company will be: Samuel Insull, chairman of the board; Martin J. Insull, Samuel Insull, Jr., Britton I. Budd, E. W. Lloyd, Harry Reid, Charles W. Chase, Morse Dell Plain, R. M. Feustel, L. B. Andrus and F. E. Mulholland.

Trade Changes

According to an announcement by Thomas H. Huff, president Huff, Daland & Co., Inc., the firm name has been changed to the Huff, Daland Airplanes, Inc., Bristol, Pa.

The United States Hammered Piston Ring Co., formerly of 1206 South Grove Street, Irvington, N. J., has moved to 1222 South Grove Street, it being necessary to build larger quarters due to the increased volume of business. The company is negotiating for the purchase of 7 acres of ground for further expansion.

The name of the Goulds Mfg. Co., Seneca Falls, N. Y., is changed April 1 to Goulds Pumps, Inc. No change in ownership, management or policy is contemplated. When the company was incorporated, in 1869, it had a wide variety of products; today it builds pumps only.

H. J. Eberman has purchased the structural steel business of the Canton Bridge Co., Canton, Ohio, including all fabricating machinery and erection equipment. He has also purchased the Canton Structural Steel Co., and will continue the business under this name and, for the present, at the same location.

J. L. Latture Equipment Co., 354 Belmont Street, Portland, Ore., has been appointed sales representative of the Climax Engineering Co., Clinton, Iowa, manufacturer of engines and power units. The sales territory will be Oregon, Washington and Idaho.

Clem Werner, 3110 West Thompson Street, Philadelphia, has taken over the entire business of the Aetna Scrap Iron & Salvage Co., effective Jan. 1. Open-hearth, blast furnace and foundry stock are carried.

Waterloo Gasoline Engine Co., Waterloo, Iowa, announces a change of name, effective April 1, to the John Deere Tractor Co. No change of ownership, management or officers is contemplated. The company was organized in 1892.

Battey & Kipp, Inc., consulting engineer, formerly located at 123 West Madison Street, Chicago, moved its office March 27 to the Illinois Merchants Bank Building, 230 South Clark Street.

B. Katchen Iron Works has moved from 107 Hunterdon Street, Newark, N. J., to larger quarters at 149-155 Shaw Avenue, Newark.

Republic Iron & Steel Co. has moved its Chicago office from room 1008 to room 561, 332 South Michigan Avenue.

The Niles Tool Works Co. Division and the Pratt & Whitney Co. Division of the Niles-Bement-Pond Co. will move the Cleveland office and sales room April 1 from West Superior Avenue to 1433 East Twelfth Street.

The Milwaukee Electric Crane & Mfg. Corporation, Milwaukee, opened an office, effective March 1, at 11 South La Salle Street, Chicago, in charge of Byron B. Evans.

The W. G. Nagel Electric Co., dealer in used electric motors, Toledo, Ohio, has changed its name to the Lake States General Electric Supply Co.

James Howden & Co., Wellsville, N. Y., manufacturer of air preheaters for furnaces and boilers, has changed its name to the Air Preheater Corporation.

The St. Louis Pressed Steel Co., East St. Louis, Ill., manufacturer of stampings, has changed its name to the Key Boiler Equipment Co.

The Wayne Heating Corporation, Richmond, Ind., has removed its offices and equipment to Columbus, Ohio, where it will occupy the former plant of the Loudenslager Foundry Co. The company manufactures a smokeless boiler.

The Magee Furnace Co. has moved its general offices from 38 Union Street, Boston, to its plant in Taunton, Mass. A show room will be maintained at the former Union Street location.

The Saco Lowell Shops, textile machinery, on April 12 will move its general offices from the First National Bank Building, Boston, to the Newton, Mass., plant.

The National Iron & Wire Co., Cleveland, has moved its entire plant and offices from 3901 Hamilton Avenue to St. Clair and East 222nd Streets, where the plant of the E. W. Bliss Co. has been acquired. The new equipment and additional space will be utilized to render more complete service in the fabrication of structural and ornamental steel work.

The Riverside Boiler Works, Inc., 491 Main Street, Cambridge, Mass., has leased a suite of offices in the Manufacturers' Bank Building, 240 Main Street.

Harron, Ricard & McCone, pioneer machinery firm of Los Angeles, moved into their new building at 2205 Santa Fe Avenue on April 1. The structure, which was built especially for handling heavy machinery, is equipped with a traveling crane, a jib crane and a spur track.

Joseph T. Ryerson & Son, Inc., Chicago, has arranged with F. A. Brandes of the Brandes Machinery Co., Keith Building, Cleveland, to represent it exclusively on the complete line of metal-working machinery and small tools. The Ryerson company has a group of machine tools and metal-working equipment which serves a wide range of industries. Mr. Brandes has worked with the manufacturers of the Cleveland territory for many years.

Joseph Brenner, purchasing agent, with other financial interests, has taken over the Maryland Pipe Supply Co., Inc., Hagerstown, Md. The company handles structural steel material in all its branches, scrap material such as metal, castings, and a general line of wrecking material, together with a full line of second-hand pipe.

The Roller-Smith Co., electrical instruments and circuit breakers, 233 Broadway, New York, has made the following changes in its sales agencies: Maryland, Virginia and North Carolina, formerly covered by J. E. Perkins, Baltimore, are now covered by C. R. Speaker, Evening Star Building, Washington. These states, plus the District of Columbia, comprise Mr. Speaker's territory. The Tennessee Engineering & Sales Co., Tennessee General Building, Knoxville, now covers Georgia, Florida and South Carolina, together with eastern Tennessee. The former arrangement with W. A. McCombs & Co., Westinghouse Building, Pittsburgh, has been transferred to a newly-formed organization, the D-C Sales Engineering Co., at the same address. The new organization

comprises T. M. Cluley and G. S. Denithorne. Mr. Cluley, as manager of W. A. McCombs & Co., has been identified with the Roller-Smith interests in the Pittsburgh section for several years.

Industrial Finance

The 1925 report of Crane Co., Chicago, showed net consolidated income for the year of $8,342,029 after Federal taxes, equal, after dividends on the outstanding 7 per cent preferred stock, to $3.77 a share on 1,946,520 common shares of $25 par value. The book value of the stock, according to the Dec. 31 balance sheet, is $35.60 a share, compared with $33.35 a share in 1924. The report shows accumulated surplus as of Dec. 31, 1925, was $20,636,253, compared with $16,284,074 at the end of 1924, a gain of $4,352,179. Current assets were $53,509,976 and current liabilities were $7,964,779, as compared with current assets of $52,140,765 and current liabilities of $7,229,468 at the end of 1924. Total assets were $96,362,556 against $90,785,193.

Net earnings of the Wagner Electric Corporation, St. Louis, for 1925, after deducting depreciation, interest charges and taxes, were $155,926, against $35,029 in 1924, the common stock earning 60c. a share dividend last year, against a deficit of $70,000 of the dividend requirements on the preferred stock in 1924, according to the annual report for 1925. Gross profit on sales amounted to $1,311,165, and the general selling and administrative expenses to $1,002,931, in 1925. Gross profit on sales in 1924 amounted to $1,065,406, and the general selling and administrative expenses to $908,537. Current assets at the close of 1925 were $5,202,904, and current liabilities $834,120.

Annual report for 1925 of the Standard Screw Co., Jersey City, N. J., shows net income after depreciation of $357,937. Payment of 6 per cent dividend on preferred stock and 11½ per cent on common stock, amounting to $733,798, was taken partly out of surplus, which at the end of the year stands at $2,678,954. Assets aggregating $10,198,487 include $5,479,216 current assets, all of the remainder being the depreciated value of the plant and equipment.

Annual report for 1925 of the United Alloy Steel Corporation, Canton, Ohio, shows manufacturing profits before charges of $6,077,178. After depreciation, taxes, interest, etc., a net profit of $3,128,985 remained. Most of this was carried to surplus, the dividend payments having been $631,000, representing 7 per cent on preferred stock and 10 per cent on common stock. Surplus account at the end of the year aggregated $29,998,181. This is practically 70 per cent of the total of assets, which are given in the balance sheet at $42,616,122. Current assets at $17,911,227 were more than five times current liabilities, at $3,415,212.

Stockholders of the Otis Steel Co., Cleveland, have approved a bond issue of $12,000,000 as part of the company's refinancing plans, and more than 75 per cent of the stockholders have approved a proposed issue of prior preference stock to replace present preferred stock, on a basis to wipe out accrued but unpaid dividends. Details of the refinancing were given on page 741 of our March 11 issue.

Following several years of poor earnings, the Liberty Steel Co., subsidiary of the Trumbull Steel Co., Warren, Ohio, is now showing earnings and improving its financial position, John T. Harrington, president, informs stockholders. The Liberty company is devoting its production solely to tin mill black sheets, having discontinued the manufacture of tin plate. It was purchased in 1919 for the Trumbull interests by Jonathan Warner, former president of the Trumbull company, for $1,300,000. Earnings after the sale were such that preferred dividends were paid from capital, until a deficit of $252,659 was developed in this manner. Last year the company showed net earnings after charges of $79,108; its preferred dividend requirements for the year, at $69,412, were not paid, however, owing to the deficit. President Harrington states that profits in January were $17,709, and $22,081 in February, or at an annual rate of $240,000. Notes owed, amounting to $295,000 at the close of last year, have since been reduced to $229,926. The balance sheet shows assets of $2,289,522. There is a bonded debt of $150,000.

Welded pressed-steel parts which are economically employed in the products of the automotive and other industries are pictured in a 16-page booklet issued by the Heintz Mfg. Co., Front Street and Olney Avenue, Philadelphia. The booklet, which bears the title of "Common Sense in Steel Dollars" is attractively arranged. Among the numerous illustrations are views of various welding, press and assembly operations. The application of welding, it is pointed out, has made possible the fabrication of steel stampings into intricate articles, the improved practice having facilitated manufacture and reduced costs.

NEW TRADE PUBLICATIONS

Micarta Gear Ratings.—Westinghouse Electric & Mfg. Co., East Pittsburgh. A change in the computation of the horsepower ratings of Micarta gears, based on the use of a fiber stress figure of 6000 lb. in place of 5000 lb., previously used, described in publication C-1579-D. Examples of how to calculate the horsepower rating; tables giving the preferred pitch, the values of the constants used, gear data, and horsepower ratings at various pitches are included. There is also a description of Micarta, its qualities and its advantages in gears and pinions.

Switches.—Westinghouse Electric & Mfg. Co. Leaflet 25403 describing the design and engineering specifications of its types R and RA disconnecting switches. Besides several illustrations there is a table showing the outdoor shell-type insulator assembly ratings.

Automatic Boiler Feed Regulator.—Murray Automatic Boiler Feed Co., Bridgeport, Conn. Report of comparative tests of a steam boiler with and without the regulator, to determine whether a fairly constant water level would increase efficiency. The tests were made by Prof. A. C. Jewett of the University of Maine. The report, based on 10 or 11 hr. under each test, shows an increase in efficiency stated at 13 per cent.

Pulverized Fuel System.—Combustion Engineering Corporation, Broad Street, New York. Catalog U-I of 15 pages is devoted to a unit system combining a pulverizing mill of the impact type with modern furnace design intended for the use of pulverized fuel. Illustrations of the component parts, together with sections of different types of furnaces and layouts of apparatus, are given with explanatory text. The system is designed for units of 150 hp. and upward.

Gaskets.—Metallo Gasket Co., New Brunswick, N. J. Catalog No. 26, listing plain corrugated metal gaskets, corrugated copper-asbestos gaskets, Bethany type copper-asbestos gaskets, compressed asbestos fibre gaskets and several other styles. The gaskets may be furnished in monel brass, steel and other metals. Dimensions and price list are given.

Forging Equipment.—National Machinery Co., Tiffin, Ohio. Forging Machine Talk No. 54, discussing the forging of a ½-in. insulator pin. The two-step sliding die employed is illustrated. The job pin is made in two blows and one heat.

Gasoline Locomotive.—The Davenport Locomotive Works, Davenport, Iowa, has published a circular descriptive of its new 4-ton gasoline locomotive known as the Davenport-Fordson. This locomotive has a speed range of 3 to 14 miles per hr. with three speeds provided for in reverse, as well as forward operation. Its maximum tractive power is 2125 lb. The engine and transmission parts are Fordson throughout.

Abrasives.—Norton Co., Worcester, Mass. A 24-page illustrated bulletin, 3½ x 6¼ in., outlining the history and development of artificial abrasives.